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Symposium on Jaundice

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Etiology of Jaundice

Dr. C. H. A. Walton

1. Definition: Jaundice is the clinical sign of an increase of bilirubin, (bile pigment) in the blood. Bilirubin is normally present in the blood up to about four Van den Bergh units. Clinical jaundice simply means the staining of the skin and tissues with excess pigment. The blood level of bilirubin usually rises to a level of at least double the normal before staining of the tissues occurs. The staining may and frequently does persist for a period of time after the bilirubin content of the blood returns to normal. Jaundice, strictly speaking, is said to exist when the blood bilirubin rises, from any cause, and does not necessarily mean apparent staining of the tissues. That is, jaundice may exist without apparent jaundice.

2. Bilirubin is the breakdown product of the hemoglobin molecule which does not contain iron. The iron containing component is named Haemosiderin. Haemosiderin is retained in the body and used in future hemoglobin synthesis. Bilirubin is normally excreted by the liver. The breakdown of hemoglobin with the production of bilirubin is a continual and normal process. It occurs in the Reticulo-endothelial system, usually in the spleen, bone marrow and to a very small extent in the Kupffer cells of the liver in man. Bilirubin is normally excreted by the liver but when it is in excess of four Van den Bergh units (equivalent to 2 mgms. bilirubin) it is excreted by the kidney. Bilirubin which has passed through the liver cells is chemically changed and is readily excreted by the kidney but bilirubin which has not passed through the liver cells is held back by the kidney as occurs in pure hemolytic jaundice.

3. Bile as it is produced by the liver contains three main substances: 1. Bilirubin. 2. Bile acids. 3. Cholesterol.

Thus if there is any obstruction in the biliary tract all three of these substances are obstructed and accumulate in the body fluids and tissues. The accumulation of billirubin causes jaundice and the accumulation of bile acids probably accounts for the pruritis seen in obstructive jaundice and, of course, in obstructive jaundice there is an elevation of the blood cholesterol, sometimes associated with xanthomata.

Classification of Jaundice

1. Hemolytic Jaundice (acholuric jaundice)

In this disease there is an excess production of bilirubin by hemolysis with the result that the liver cells are unable to excrete all the pigment reaching them and hence the blood level rises. In addition the bile contains an excess of bilirubin and as there is no obstruction in the biliary system bile acids and cholesterol do not increase and therefore pruritis is notably absent in cases of hemolytic jaundice. As the serum bilirubin has not been changed by passage through the liver cells it is not readily excreted by the kidney with the result that bile is not found in the urine. The increase of bile pigment in the bile leaving the liver causes increased intestinal production of urobilinogen which is re-absorbed from the intestine and finally is excreted from the kidney. Thus in hemolytic jaundice the urobilinogen content of the urine is markedly increased. Hemolytic jaundice occurs in any condition in which there is excessive haemolysis such as occurs in:

1. Haemolytic anaemia—The excessive production of bile pigment may lead ultimately to the formation of pure pigment stones which may cause bile duct obstruction and give the superimposed picture of obstructive jaundice.

2. Poisons such as snake venom and unmatched blood transfusions.

3. Anaphylactic phenomena such as Rh factor incompatibility or sensitization to the aniline drugs.

4. Pernicious anaemia.

5. Malaria (producing so-called Black Water Fever).

Acute hemolysis not only produces the jaundice referred to above but is often characterized by the excretion of hemoglobin in the urine. Van den Bergh's reaction is indirect or delayed.

2. Obstructive Jaundice (obstruction may occur in any part of the biliary tract)

1. Stones—Pigment, cholesterol or infective or mixed stones.

2. Congenital obliteration of the bile ducts.

3. Cholangitis with or without stricture (results of stone or operation).

4. Carcinoma of the bile ducts.

5. Cirrhosis. This may involve the bile ducts by fibrosis or serotic nodules may obstruct by pressure on the larger ducts.

6. Malignant tumors.

7. Gummata.

8. Hydatid Cyst.

9. Metastatic glands in the Porta Hepatis.

10. Carcinoma of Ampulla of Vater.

11. Tumor of head of the pancreas.

Obstructive jaundice is characterized by:

1. Increasing jaundice.

2. Pruritis and bradycardia produced by increase in the bile acids.

3. Cholesterosis—Sometimes the disposition of the skin of xanthomata.

4. Decrease in blood coagulability due to damage of the liver cells by continued obstruction and from failure to elaborate prothrombin.

5. Stools are pale.

6. Urine, bile increased and bile salts increased as evidenced by the sulphur test.

7. Liver function ultimately is deranged with resultant mental depression, irritability, etc.

8. Van den Bergh test is direct but later may become bi-phasic due to liver cell damage.

3. Toxic or Infective Hepatitis

There are many causes such as chemical poisoning and infection. The essential feature is widespread damage to the liver cells, to the bile ducts or both. Damage of the liver cells is the most important lesion. This varies in degree and the course of the disease is modified accordingly. The effects are due to obstruction in the biliary tract as a result of inflammation and inability of the liver cells to excrete bilirubin normally.

In consequence the blood contains increased amounts of both changed and unchanged pigment. Thus the Van den Bergs reaction is bi-phasic. The stools may be pale. The urine contains bile and the clinical picture is essentially that of obstructive jaundice plus that of direct liver damage. This group includes all forms of hepatitis, acute, subacute and chronic, bacterial and virus infections, poisons such as chloroform or toxins and unrecognized agents such as in eclampsia. Specific forms of hepatitis are epidemic infective hepatitis due to a virus and infective haemorragic hepatitis due to infection with the spirochaete of haemorragic jaundice.

Accepted Laboratory Procedure in Jaundice

Dr. J. M. Lederman

This is a difficult subject for several reasons. The metabolism of blood and bile pigments is complicated. Liver functions are numerous and many are not well understood. Liver function tests depend, as a rule, upon a single function which may be more damaged than the other functions of the liver in a given case so that it is often necessary to consider the results of several different tests. Also, it may be necessary to perform the same test many times for diagnosis and evaluation of therapy. Therefore cheap, reliable and technically simple tests are to be preferred.

Dr. Walton has classified jaundice into the three broad groups: (1) Hemolytic. (2) Toxic or infective —the main damage is to hepatic cells and for the sake of brevity this group will be referred to as hepatogenous. (3) Obstructive—affecting usually the major bile ducts.

In hemolytic jaundice, liver damage is apparently minor. Important diagnostic procedures, such as may demonstrate anemia, spherulocytosis, reticulocytosis, bone marrow activity, hemolysins, etc., are in the field of hematology. Our discussion includes only those concerning abnormal physiology of blood pigments.

Most difficulty usually arises in distinguishing cases in groups 2 and 3. In hepatogenous jaundice, biliary obstruction may become complete due to diffuse hepatic cell damage and obstruction of bile canaliculi and minor bile ducts, while, on the other hand, hepatic damage may become severe in post-hepatic biliary obstruction due to infection or prolonged increase in biliary pressure. Thus, regardless of the primary cause of the jaundice, overlapping is likely to occur eventually in groups 2 and 3.

I should like to re-emphasize some of the points made by the first speaker regarding the cycle of bile pigments in the body. This cycle must be kept in mind in order to understand the significance of tests based upon the bile pigments. As recently described by Watson, the normal and the pathological breakdown of hemoglobin by the reticulo-endothelial cells of the bone marrow, spleen and liver results in bilirubinglobin. Its molecule compares in size with the albumin molecule and therefore cannot pass the renal filter and does not appear in the urine. It also causes the positive delayed or indirect Van den Bergh reaction. In its passage through Kupffer cells and liver cells it loses its globin and forms a water-soluble salt, sodium bilirubinate, which is excreted in the bile. If regurgitated into the blood stream,

this type causes the positive direct Van den Bergh reaction. Also, it is excreted in the urine beyond a somewhat variable renal threshold corresponding to the concentration signified by an icterus index of about 15 units.

Bile pigments excreted into the intestine account for the coloration of the stool. Urobilinogen is formed by the action of intestinal bacteria. A proportion of this is normally absorbed through the intestines and carried by the portal vessels to the liver. Here much of it is re-excreted by the liver, but a smaller amount flows over into the general circulation. It is excreted in small concentration in the urine, where, as in the stool, it oxidizes on standing exposed to light or air into urobilin thus accounting for the darkening of color of these excreta. Increased amounts of bile pigments in the stool due to excessive hemolysis (group 1) therefore result in increased urobilinogen in urine. However, decreased amounts of bile in the stool, in the presence of hepatic damage (hepatogenous jaundice) may be accompanied by an increase in urinary urobilinogen through inability of the damaged liver to excrete urobilinogen and its excessive overflow into the general circulation. Except rarely, in complete biliary obstruction where no bile reaches the intestine, no urobilinogen is formed, none can be absorbed and none appears in the urine.

In the time at my disposal it is possible to make only very brief mention of those tests which can be performed here. Techniques are omitted and the value of the tests considered in a general way.

Tests

Icterus Index—This test merely measures the amount of color in the blood serum. It is simple and reasonably accurate for some purposes. An icterus index of 1 unit is the amount of color equal to that of a 1 in 10,000 solution of potassium dichromate. The normal range is 4 to 6 or 7 units, but values of 2 to 15 are occasionally found in presumably normal individuals. Carotinemia or hemolysis may occasionally cause misleading results, but seldom do. It parallels the serum bilirubin very roughly. It is always elevated in all types of jaundice. Results between the normal range and the appearance of clinical jaundice (7 to 15 or 18) are found in latent jaundice. Serial tests may be of value in different diagnosis. In hepatogenous jaundice and in jaundice due to obstruction by a stone the icterus index may reach a high level, but tends to fluctuate from time to time. In jaundice due to carcinoma, there is little fluctuation at a high level.

Quantitative Van den Bergh Test. This test gives an accurate reading of bilirubin in the blood although low levels are difficult to estimate. It is expressed in milligrams of bilirubin per 100 ccs. of blood. The result multiplied by 6 to 25 gives the comparable icterus index. Normal is considered as 0.1 to 0.5 mgm.% with occasional wider variation. Clinical jaundice appears at a level of 1.5 to 2. Interpretation is as for the icterus index.

Qualitative Van den Bergh Test. As explained previously, hemolytic jaundice results in a positive indirect Van den Bergh test. The pure obstructive jaundice results in a positive direct Van den Bergh test. Hepatogenous jaundice, and obstructive jaundice complicated by liver damage results in a combined or biphasic Van den Bergh test, due to the presence of both types of bilirubin. In such cases, urinary tests may give more direct information.

Examination of Duodenal Contents. Demonstration of the presence of bile pigments and crystals indicate the absence of complete biliary obstruction. Pus cells in the bile may indicate biliary tract infection.

Examinations of Feces. Simple inspection and recording of color of stools is important. The stools in hemolytic jaundice will be highly colored due to the excessive formation of bile pigments. Reduced formation and excretion of bile pigments results in paler stools and complete obstruction in the "clay-colored" stool. The last is also fatty because of the absence of bile acids and consequent poor absorption of fats from the intestinal tract. Small amounts of bile pigments may not cause sufficient color to be evident on inspection. **Schmidt's Test** is of value. A small portion of stool is mixed with saturated solution of mercuric chloride. A red color develops in 24 hours if bile pigments are present, the degree of color being roughly comparable to the amount of pigment present. We have found it convenient, in order to obtain a quick result, to heat the mixture in a boiling water bath for 5 minutes. This results in the development of the same amount of color obtained by leaving the mixture for 24 hours at room temperature and permits one to prepare a control of the same mixture which is not heated. The control may be valuable where only small amounts of pigment are present. No color is obtained where biliary obstruction is complete, small amounts where it is partial or intermittent, large amounts in hemolytic jaundice. It has been shown that obstruction may become complete in hepatogenous jaundice and sometimes partial or intermittent in obstruction due to stone. **Quantitative Tests** involve the collection and mixture of 1 to 3-day specimens of stool and are too cumbersome at present for general use.

Examinations of Urine. (a) Foam Test. The well known foam test and sulphur test depend on lowering of surface tension of the urine due to the presence of bile salts. As explained before, these substances can only appear in urine in regurgitation jaundice since they are formed in the liver and normally only appear in the excreted bile. The foam will be yellow due to staining with bilirubinate. Small amounts may be difficult to detect.

(b) Iodine Test. Qualitative tests for bile have been unsatisfactory. One of the more useful is to overlay the urine with a 1 in 10 alcoholic solution of tincture of iodine. The development of a green color at the junction indicates the presence of bilirubinate.

(c) Harrison's Spot Test appears to be the most satisfactory. A strip of filter paper which has been previously soaked in saturated solution of barium chloride and dried is dipped in the urine part way. It is then taken out and a drop of Fouchet's reagent is applied to the most colored portion. Development of a green color indicates the presence of bilirubinate. These tests are, of course, negative in the absence of biliary obstruction, positive in groups 2 and 3.

(d) Urobilinogen is estimated by adding 1 cc of Erhlich's aldehyde reagent to 10 ccs. of urine. Development of a pink color in 5 minutes indicates the presence of urobilinogen. The intensity of the color depends on the concentration of the urobilinogen. The test becomes roughly quantitative when performed on serial dilutions of the urine, no color developing normally in dilutions greater than 1 in 20. Amounts are increased in the urine where excessive amounts are formed as in the hemolytic group where large amounts of bile pigment reach the intestine, large amounts of urobilinogen being formed and absorbed, a larger than normal amount escaping into the general circulation and reaching the urine through the kidneys. In hepatogenous jaundice, smaller than normal amounts of urobilinogen may be formed in the intestine. In spite of this, due to hepatic damage, smaller amounts are re-excreted by the liver and larger amounts escape into the general circulation and appear in the urine. Of course, if the condition reaches a phase of complete biliary obstruction, then no urobilinogen is formed and none appears in the urine. In recovery, when bile again reaches the intestine, urobilinogen reappears in the urine in higher than normal concentration. For the same reasons, in uncomplicated post-hepatic jaundice absent urobilinogen indicates complete obstruction; present (usually reduced amount) means partial obstruction. Hepatic damage may again complicate the picture. Several precautions are necessary. 24-hour specimens may be used, but must be kept from light and overlaid with toluene to prevent oxidation to urobilin. Or fresh urine, preferably collected in the afternoon, since highest concentrations are obtained then, may be examined with more consistent results than with the casual specimen.

(e) Crystals of leucine and tyrosine may be found in the urine in the acute hepatic necroses.

(f) Quantitative estimations of daily excretion of bile pigments in urine have the same disadvantages described for similar tests in feces.

Galactose Tolerance Test. This test depends upon the power of the liver to convert galactose into glycogen. It is difficult to perform, expensive, and not very sensitive. It may be slightly positive in obstructive jaundice and markedly positive in hepatogenous jaundice. Where confusion arises in diagnosis between these groups it may be of value.

Hippuric Acid Test. The test depends upon the power of the liver to form glycine and its conjugation with benzoic acid to form hippuric acid which is excreted in the urine. A measured amount of sodium benzoate is ingested (or injected intravenously) and the amount of hippuric acid in the urine is estimated. Decreased amounts of hippuric acid in the urine are indicative of hepatic damage. The test is more sensitive than the last one but cannot be used in the presence of renal damage or urinary obstruction. It is moderately complicated to perform.

Bromsulphthalein Test. The test depends upon the power of the liver to excrete the dye. A measured amount is given intravenously and the amount remaining in the circulation at the end of 30 minutes is estimated. More than 10% of the dye remaining in the blood stream indicates liver damage or obstruction, but does not differentiate as the dye, like bilirubinate, may be regurgitated into the blood stream in obstruction. It is sensitive and is likely to be most valuable in the absence of jaundice (as there will be no possibility of obstruction in this case).

Alkaline Serum Phosphatase Estimation. The enzyme is formed in the skeletal system and possibly partly in the liver and is excreted through the liver in the bile. A marked increase usually indicates obstructive jaundice and a less marked increase hepatogenous jaundice, but there is much overlapping of results. It cannot be used in the presence of some bone diseases which may themselves cause alterations.

Blood Prothrombin Estimation. The fat soluble vitamin K is absorbed through the intestinal tract

and carried to the liver. Here it is converted into prothrombin. In obstructive jaundice, due to absence of bile salts and consequent poor absorption of fats, the amount of prothrombin may be reduced due to insufficient supply of the vitamin K to the liver. The same may be true in the obstructive phase in some cases of hepatogenous jaundice. In hepatogenous jaundice, due to diffuse parenchymal damage, even though sufficient vitamin K reaches the liver, reduced amounts are formed and the prothrombin concentration in the blood is reduced. Re-estimation 24 hours after a parenteral dose of the water soluble vitamin K will, in the absence of marked parenchymal damage, result in a substantial rise. In the presence of such damage the response is poor. Estimation here is done by Quick's method and requires considerable care in order that consistent results may be obtained.

Fibrinogen Estimation. This substance is reduced in amount in severe liver disease.

Albumin and Globulin Estimation in the Plasma. These are deranged in many disease states. In cases of chronic liver damage the albumin tends to be low and the globulin a high normal, but in acute liver necroses the globulin may be above normal limits. These do not have much value in diagnosis in jaundice but may be important in evaluation of therapy.

Serum Precipitation Tests. Colloidal gold test and Takata-Ara tests appear to have gone out of vogue recently. The **Cephalin-cholesterol Flocculation Test** consists of mixing definite proportions of a cephalin-cholesterol suspension and serum. A reading is made after 48 hours. A positive test indicates liver damage and is reported as 1 plus to 4 plus, the degree of flocculation paralleling the degree of liver damage. A slight positive reaction may be obtained in obstructive jaundice with minor liver damage, but in prolonged and complicated jaundice more strongly positive results are obtained.

The Thymol Turbidity Test has similar significance but is slightly less sensitive. It is performed by mixing definite proportions of blood serum and a special thymol solution. The degree of turbidity resulting is read after 5 minutes against Kingsbury-Clark albumin standards. These precipitation tests appear to depend on some unknown alteration in the serum proteins in liver disease, possibly mainly in the globulins. They appear to measure activity of disease processes in the liver rather than residual liver function and may prove valuable in following the course of the disease. False positive tests may occur in virus pneumonia, malaria, infectious mononucleosis subacute bacterial endocarditis, such as may lead to false positive serological tests for syphilis.

Medical Treatment of Jaundice

C. B. Schoemperlen, M.D.

Jaundice may occur in many disorders both within and without the liver. Often it is due to obstruction of the bile duct and then the obvious treatment is removal of the obstruction usually by surgical means. If this be impossible it becomes the duty of the internist to (1) protect the liver so far as this is possible, (2) relieve the symptoms due to the jaundice itself, and (3) maintain the patient's nutrition and metabolism at a normal or near normal level.

However, the jaundice we are called upon to treat is more often due, not to obstruction but to the condition called "hepatitis." This liver disorder, so frequently seen in epidemic form during and following the war, has been named, in one form "infective or infectious hepatitis," and, in another, "homologous serum jaundice." Until recently it was commonly referred to as "catarrhal jaundice."

There is much difference of opinion as to the best methods of treatment. In these remarks I give you conclusions based upon a review of the voluminous literature together with personal impressions arising out of the observation of some 3,000 cases which were studied and treated in our medical department while stationed in the Central Mediterranean. Many of these cases have been followed up and rechecked since their return to Canada.

A. Treatment In General

1. Bed Rest. This is extremely important not only because the patient is more comfortable in bed but also because rest has a very beneficial effect upon the course of the disease. This is made apparent by the clearing of the jaundice, the improvement in laboratory tests, and the lessening in size and tenderness of the liver. Activity, on the other hand, not only delays recovery but if started too early in convalescence may lead to a relapse. Bed rest should be continued until:

(a) The icterus index becomes normal.

(b) The urine is free from bile.

(c) The liver in size and tenderness is normal or nearly so.

(d) There is no longer nausea, vomiting or severe dyspepsia.

(e) The liver function tests are normal.

(f) Haemorrhagic phenomena have disappeared.

(g) The patient feels well.

After the patient has improved to the point of getting out of bed there should be a gradual increase in effort over the next 3 or 4 weeks at the end of which time he may be fit for work.

2. Diet. The diet should be about 4,000 calories. A diet high in protein and carbohydrate, and rich in the various factors of vitamin B is essential. Fats need not be excluded as was the old practice but may be given up to 100 grams according to individual tolerance. Often in the early stages of the disease the patient cannot tolerate fats and then they should not be forced. Greasy foods are never well tolerated.

3. Vitamins are of great importance. **Vitamin B** can be given as brewer's yeast in doses of one ounce or 20 grams daily. If not tolerated in this form 3 or 4 capsules of concentrated B Complex must be given three times daily. The **Vitamin C** requirement is usually met adequately by the fruit in the diet. **Vitamins A and D** are especially indicated when the fat content of the diet is low. Then a capsule containing 5,000 units of A and 1,000 units of D is given daily. **Vitamin K** in the form of Synkavite or Synkamin must be given parenterally every other day in dosage of 4 mgm. if the icterus index is over 75, if there is evidence of haemorrhage, or if the prothrombin time is prolonged.

4. Amino-acids may be given intravenously, in the presence of nausea or vomiting, in dosage of 20 gms. in 500 cc. of glucose and saline or the proprietary preparations, paranamide or amigen may be used to make up protein deficiency.

5.. Lipotropic Factors. The most important liver protecting factors present in crude Vitamin B Complex appear to be choline and the sulphur—containing amino acids: methionine and cystine. Methionine and choline are "lipotropic" i.e. they mobilise, or prevent deposition of, excess of fat, or abnormal fat, in the fat depots in the liver. The lipotropic property of these substances depends on the fact that both substances have methyl groups which appear necessary for hepatic fat metabolism, presumably for the conversion of neutral fats to phospholipides.

Methionine is given in daily dosage of 5 to 12 gm. and cystine in dosage of 2-10 gm. If either is given intravenously it is in the form of a 2% solution in normal saline and the time of injection is 3 hours or longer. When choline is given intravenously one must be on guard for severe reactions such as excessive secretion, bronchial spasm, abdominal cramps, flushing and sweating. These bye effects can be counteracted by giving atropine sulphate in doses of 1/100 grain subcutaneously every 4 hours.

Certain points must be borne in mind: (a) Methionine and choline protect the liver of a protein deficient animal but there is no evidence that an animal on a well balanced diet is benefitted by extra methionine or choline. (b) Methionine protects the liver of protein-depleted animals if it is given **before** the hepato-taxic agent. (c) Little is known of their value on a liver damaged by infective hepatitis.

In view of these facts and considering the expense involved these substances should probably be administered only to the very early or very sick cases. The patient who can eat enough protein is unlikely to need them.

6. Antipruritics. Itchiness may be very uncomfortable and even harmful. For its control the most satisfactory agents are (a) Calamine lotion with 1% phenol; (b) Calcium gluconate, 10 cc. of a 10% solution, intravenously; and (c) procaine solution, 1 gm. in 1,000 cc. intravenously about 2 hours being taken for the injection.

7. Sedatives. Opium derivatives should never be given. Barbiturates should be avoided if possible, because of their increased toxicity in liver disease, and never given in dosage greater than a third or a half of the usual dose. Chloral hydrate by mouth and paraldehyde by rectum are useful.

8. Alcohol is strictly taboo during the stage of jaundice and should be avoided for perhaps several months after recovery.

B. Preventive Treatment

Because the illness is long and may be serious every effort must be made to prevent its development. The following measures are the most valuable.

1. Homologous Serum Jaundice. Two rules must be followed: (a) Never use serum from a donor who has had jaundice within one year. (b) In every case boil syringes and needles used for intravenous work.

2. Infective Hepatitis. Gamma Globulins. These contain high titre of antibodies for various diseases and are of value in the prevention of infective hepatitis if given intravenously during the incubation period of the disease. They decrease the incidence and severity of the attacks. The dose is 10 cc. for adults and 0.075 cc. per pound of body weight for children. Apparently they cannot protect against homologous serum jaundice.

The sulphonamides are said to increase the severity of the disease if they are given in the prodromal stage of infective hepatitis.

C. Preoperative Treatment

The risks of surgery are increased in the presence of a damaged liver, and therefore preoperative care is important. Essentially the care is as follows:

1. Ensure a sufficient protein and carbohydrate intake by mouth and, if necessary, by vein.

2. In the presence of severe jaundice or an increased prothrombin time Vitamin K must be given in adequate dosage.

3. Pruritus may be very distressing and should be controlled.

4. Damaged liver cannot tolerate anoxia therefore (a) transfuse if anaemia be present, (b) give oxygen throughout the operation and (c) if any cyanosis is present, continue oxygen post-operatively till it has cleared.

In conclusion I would stress these points. First, that infective hepatitis and catarrhal jaundice are identical although war time cases tended to be in an older age group and to be more severe. Second, in civil as in military practice a mild case may become severe and even fatal. Third, rest and diet are sheet anchors of treatment. The present day practice of keeping people out of bed has no place in the treatment of infective hepatitis.

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Surgical Aspects of Jaundice

J. W. R. Rennie

Similar to the medical classification, the surgical classification of jaundice is: (a) Haemolytic or acholuric jaundice; (b) Toxic infective jaundice; (c) Obstructive jaundice.

Surgically we are interested only in groups (a) or (c) although the toxic infective type provides the greatest difficulty in differential diagnosis.

(a) Haemolytic Jaundice

Haemolytic jaundice occurs with excessive destruction of the red blood cells in which case bilirubin is formed more quickly than the liver can excrete it. Excessive destruction occurs in the spleen which in turn enlarges due to its overactivity. The liver also increases in size due to increased excretion. The bile in these cases contain such a high percentage of pigment that precipitation of the pigment occurs in about 70% of the cases. Stools contain excess bile and the urine excess urobilin. But bilirubinaemia does not occur unless there is obstruction due to the formation of stones.

Cases of haemolytic jaundice are now divided into three main groups: 1. Congenital, spherocytic jaundice; 2. Congenital, non-spherocytic jaundice; 3. Unclassified.

1. Congenital, haemolytic icterus, or **Congenital spherocytic jaundice** is characterized by a non-obstructive jaundice, splenomegaly spherocytosis and a decreased resistance of red blood cells to hypotonic salt solution. Jaundice in the absence of obstruction is of course due to the rapid release of pigment beyond the power of the liver to excrete. Increased fragility is limited to the spherocytes which form between 10% and 25% of the total red blood cells. This group clinically is characterized by jaundice and splenomegaly and usually proceed on a relatively mild course which is interrupted by crises in which the jaundice increases. These cases are usually not very severe and usually do not shorten life.

As the disease is often noticed in childhood there may be some interference with the normal growth of the child, but usually this is not a marked feature. This group of patients can often be carried along on general lines and splenectomy is usually not necessary as an emergency measure —and in fact should not be done under any circumstances during a crises.

If the growth of a child is being affected or if recurrent crises are a feature of the disease then splenectomy is indicated. This usually presents no unusual technical difficulty and the results in this group of cases are very good with operative mortality of under 5%. The jaundice disappears but the spherocytosis remains.

2. Congenital, non-spherocytic jaundice. Cases in this group have been reported but they are not as well defined as the previous group. There is also some argument as to whether or not these cases are benefited by splenectomy.

3. Unclassified. Cases in this group have eventually turned out to be cases of reticulum cell sarcoma, lues, tuberculosis, obscure infections, and cirrhosis. Evidently the excessive haemolysis is an acquired condition. These cases usually occur later in life and are more severe than the congenital types with marked crises. The operative mortality is higher although they do obtain relief from the excessive haemolysis. Prognosis, of course, depends upon the primary diagnosis.

(c) Obstructive Jaundice

Obstructive jaundice pathologically may be caused by:

1. Foreign body in the ducts (such as a stone).
2. Lesions of the wall of the ducts (such as carcinoma or stricture).
3. Compression of the duct from without, such as occurs in carcinoma of the pancreas, secondary carcinoma, and occasionally from glands along the duct.

The effects of obstruction of the biliary tree are: **Retention of bile** (and it is well to note that it is only the bile salts that are toxic—the bile pigment itself is not toxic). As a result of retention the bile duct system becomes dilated and this in itself is often an advantage to the surgeon in that if anastomosis is required one has a larger structure to work with. The dilatation as it affects the gall bladder is of importance because it sometimes gives an aid in diagnosis although this is not infallible.

This follows Courvosier's law by which, if there is no inflammatory lesion of the gall bladder such as might occur in a carcinoma of the head of the pancreas, the gall bladder becomes so distended as to form palpable tumor, whereas in obstruction due to stone (which has presumably come from a previously diseased gall bladder) then there is no palpable gall bladder.

With obstruction of the bile ducts when the pressure passes 300 mm. of water, bile secretion stops, and the bile becomes white due to the continued secretion of mucosecreting cells of the liver.

The second effect of obstruction of the common duct is **interference with the coagulability of the blood.** This depends upon the ability of the liver to form prothrombin. This is a dual mechanism in that formation of prothrombin depends on the formation of bile salts, their excretion into the intestine and their reabsorption — and also the health of the liver cells in being able to form prothrombin.

A practical point that arises is that as the body can store vitamin K it is advisable to administer this before and after operation as it has noted that there may be a rapid fall in prothrombin time after operation where it was normal before.

Clinically, obstructive jaundice is usually considered to be either painful or non-painful in an attempt to differentiate obstruction due to stones and obstruction due to malignant processes although this criteria is not infallible. Also it is very useful to know whether or not the jaundice is steadily progressing or is intermittent, as has been previously mentioned.

Several other points of importance are the question of blood in the stools which sometimes gives a lead to a diagnosis of carcinoma of the ampulla and also pancreatic function tests which may indicate a carcinoma of the head of the pancreas.

Pre-operative treatment is similar to the type of treatment that has already been outlined in the medical treatment of jaundice—i.e. high carbohydrate, high protein diet. It is well to note that the liver may also have high lipid content in the presence of a high carbohydrate content.

The amino acid which is said to give the greatest protection is methionine and the activity of this substance is related to vitamin C. metabolism.

Because the liver is very sensitive to oxygen lack it is important that the patient be properly prepared with transfusions if the haemoglobin is low pre-operatively. Cyanosis should be prevented during operation by administration of adequate amounts of oxygen and anaesthesia used which promise an adequate concentration of oxygen—such as cyclopropane.

Operative Treatment. Laporotomy provides the means of determining the exact cause of the obstruction. The operative details fall without the scope of this presentation, but certain general principles are important:

If the cause of the obstruction is capable of being removed naturally this should be done—such as removal of stone, correction of a stricture, or radical excision for carcinoma of the ampulla or carcinoma of the head of the pancreas.

If the cause of the obstruction is not capable of being removed then it is important to realize that simple external drainage should not be done because life can not be definitely maintained in the presence of a complete biliary fistula. Therefore in this type of case some short-circuiting operation should be done to allow the bile to pass once again into the intestine.

Post-Operative Treatment. This presents no unusual feature except that morphine in jaundice patients should be used as little as possible. The post-operative course of the patient should be followed by a charting of the trial of jaundice, color of stools, amount of external biliary drainage.

SURGERY

Edited by S. S. Polkoff, M.D.

Varicocele

Leonard Greenberg, M.D.

A varicocele is a varicose dilation of the pampiniform plexus of veins, which surrounds the spermatic cord. The radicles of this plexus arise from the upper pole of the testis and unite at the external abdominal ring to form three trunks, two anterior and one posterior to the cord. At the internal abdominal ring these form a single spermatic vein, which on the right side opens into the inferior vena cava, and on the left into the left renal vein.

This condition is encountered so frequently in surgical practice, and is so seldom a source of complaint, that it is usually completely disregarded. There are cases, however, in which a varicocele is merely the outward manifestation of a deeper and much more serious malady, and it is these cases, infrequent though they may be, that have prompted the writing of this paper.

Two main types of varicocele may be recognized—primary and secondary. The primary type is usually seen in young unmarried men between 15 and 25 years of age, and frequently disappears after marriage and the assumption of normal sexual relationships. It is seen nine times more frequently on the left side than on the right. Many theories have been brought forth in an attempt to explain the left-sided preponderance, and some of these deserve mention:

(a) The left spermatic vein enters the left renal vein at right angles whereas the right enters the inferior vena cava obliquely.

(b) The drag of a loaded sigmoid colon and rectum, particularly in constipated individuals, produces a compression and distortion of the left spermatic vein as it crosses the pelvic brim.

(c) The left renal vein is clamped between the root of the superior mesenteric artery and the aorta, so that in the erect posture the intestines, dragging on the superior mesenteric artery, subject the left renal vein to pressure.

(d) The left spermatic vein is destitute of valves at its opening into the renal, while the right usually possesses a pair at its orifice.

(e) The adrenaline-laden blood issuing from the left adrenal vein, bathes the mouth of the left spermatic vein causing it to contract.

(f) Most men "dress" on the left.

The secondary type may occur on either side and results from spermatic vein obstruction by intra-abdominal tumors, most often of the kidney, but occasionally by large carcinomata of the pelvi-rectal region, rarely by retroperitoneal teratoma or sarcoma. It is usually seen in men after the age of 40 years, (although cases have been reported of its association with Wilm's tumor in early childhood) and is of rapid development. It is particularly important that this secondary type of varicocele be kept in mind and its significance fully appreciated.

Symptoms

Usually there are no symptoms and the condition is discovered on routine examination. Occasionally the patient may complain of an aching pain in the scrotum, groin or loin, aggravated by standing. There may even be abnormal sexual feelings, impotence or asthenia. In the secondary type, in addition to the local complaints, there may be symptoms referable to the underlying disorder.

Signs

A distorted, tortuous and distended plexus of veins which disappears on lying down and reappears on standing, and which gives one the tactile sensation of a "bag of worms," will never tax the diagnostic skill of the examiner. In addition there may be a characteristic thrill imparted to the fingers on coughing, quite distinct from the expansile impulse of a hernia, the testicle may hang lower and be somewhat smaller and softer than that on the opposite side, and there may be an associated small hydrocele. Varicocele of obstructive origin can be diagnosed by placing the patient in the prone position, at which time one can note that the veins do not readily empty themselves, as in the primary type. One should never neglect to palpate the abdomen in the presence of varicocele, for who can tell when an unsuspected mass may present itself.

Treatment

Therapeutically, three types of varicocele may be recognized:

(1) Asymptomatic varicocele. This type, whether large or small, is best left untreated.

(2) Varicocele associated with a dragging sensation either in the scrotum or referred to the cord, groin or loin. If the symptoms are mild, one should employ a well-fitting suspensory bandage and give the patient full reassurance. If conservative measures fail or if the symptoms are severe at the start, operation should be advised, as it is this group of cases which derives most benefit from surgery.

(3) Varicoceles which are small, but which are accompanied by many and varied symptoms obviously attributable to neurasthenia. It is often difficult to select an appropriate method of treat-

ment of these cases. Without a doubt one should first explain the nature of the condition to the patient, and give him full assurance that it is essentially harmless and will probably disappear after marriage. Many, however, refuse to help themselves, and it may eventually become necessary to interfere surgically.

Many and varied operations have been suggested for the cure of varicocele, the technical details of which are without the scope of this paper. Apparently adequate suspension of the testicle is a necessity because, while simple ligation may cure the varicocele it will not relieve the dragging sensation and discomfort. Operation is not without danger, severe complications such as hemorrhage, infection, epididymitis, and particularly hydrocele and atrophy of the testicle, occurring quite frequently.

As in the treatment of varicosities elsewhere in the body, injection therapy has had its advocates. In view of its disadvantages—that it may be difficult or impossible to enter a vein, that a secondary injection may be impossible owing to the partial clotting produced by the first, and that the perivascular escape of sclerosing solution may produce necrosis and sloughing of the cord—this form of treatment has largely been abandoned.

Those cases of varicocele which are secondary to pressure by an abdominal tumor require no local treatment, since they disappear spontaneously after the tumor has been surgically removed.

Case Report

Mr. N. D., a 57-year-old white male was first seen at the office on December 12th, 1946. At that time he complained only of a dragging sensation in the left groin, aggravated by standing and walking, and of six months duration. The functional enquiry brought forth the facts that he had total hematuria on two occasions—November 1st and 3rd, 1946—and had lost 8 pounds of weight during the previous six months. He had undergone a haemorrhoidectomy operation in May, 1944, but aside from this had always enjoyed reasonably good health. Family history was essentially negative.

The patient, a short stocky man, was quite apprehensive but seemed in no distress. Physical examination revealed the following pertinent data —a few coarse rales in the lung base, a blood pressure of 150/90, a small left indirect inguinal hernia, a large left-sided varicocele which only partly disappeared on lying down, and a somewhat softened left testicle. Examination of the abdomen was difficult owing to the apprehensiveness of the patient, but no mass was palpated at this time. Urinalysis showed four red blood cells per h.p.f. but was otherwise negative. The combination of

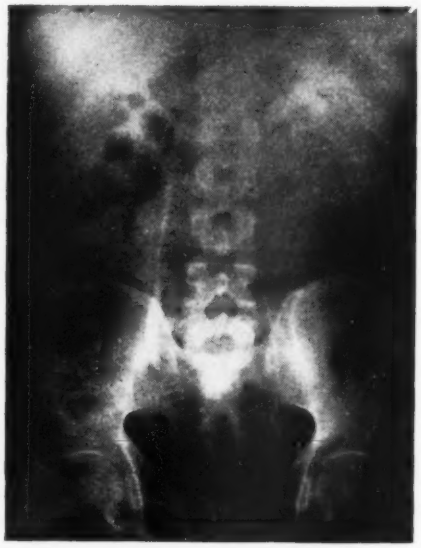

Figure 1

Figure 2

a varicocele of only six months duration and a history of hematuria at once suggested the probability of a renal new growth. The patient was urged to enter the hospital immediately for further investigation, but declined, promising to return in one month after some personal affairs had been settled.

On January 6th, 1947, he was admitted to St. Boniface Hospital. The hematuria had not recurred, but now one could feel a large, firm, irregular, slightly tender mass in the left hypochondrium. Temperature fluctuated between 98.6 F. and 100 F. Urine was negative, red blood cells 4,710,000, hemoglobin 82%, color index 0.87. A left retrograde pyelogram suggested the presence of a left kidney tumor.

Figure 1

Note dilatation of upper calyces of left kidney, also normal course of right ureter and medial displacement of left ureter.

Radiological examination of the chest was negative.

On January 15th, 1947, under cyclopropane and curare anaesthesia, a left lumbar nephrectomy was performed by Dr. S. S. Peikoff, assisted by the writer. A transfusion of 500 ccs. of whole blood was given during the course of the operation. The post-operative convalescence was uneventful, the patient allowed out of bed on the third day and home on the eleventh day. The day following operation the varicocele had disappeared completely.

The pathological report read as follows—the lower 2/3 of the left kidney is replaced by a tumor 12 cm. in diameter and weighing 875 grams. On cross section this tumor presents the typical variegated appearance of a renal carcinoma (hypernephroma). The renal vein is free from tumor growth. Microscopic sections show a clear-cell renal carcinoma. **Figure 2**

Summary

The etiology, diagnosis and treatment of varicocele is discussed. The importance of distinguishing between primary and secondary hydrocele is stressed. A case of secondary hydrocele is presented. May the writer enter a plea that all cases of varicocele which come on suddenly in men over 40 years of age be thoroughly investigated to rule out the presence of an abdominal tumor.

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Medical Happenings for March

Tuesday, 4—
Luncheon, Misericordia Hospital, 12:30 p.m.

Wednesday, 5—
Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 6—
Luncheon, Winnipeg General Hospital, 12:30 p.m.

Wednesday, 12—
Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 13—
Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 13—
Luncheon, St. Boniface Hospital, 12:30 p.m.

Friday, 14—
Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 14—
Luncheon, Victoria Hospital, 12:30 p.m.

Tuesday, 18—
Luncheon, Grace Hospital, 12.30 p.m.

Wednesday, 19—
Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 20—
Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 20—
Luncheon, Winnipeg General Hospital, 12:30 p.m.

Friday, 21—
Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 21—
Meeting, Winnipeg Medical Society, 8:15 p.m., Medical College.

Tuesday, 25—
Luncheon, St. Joseph's Hospital, 12:30 p.m.

Wednesday, 26—
Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 27—
Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 27—
Luncheon, St. Boniface Hospital, 12.30 p.m.

Friday, 28—
Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

ANAESTHESIOLOGY

Edited by P. C. Lund, M.D., Anaesthetist, Deer Lodge Hospital

Notice of Meeting

The next meeting of the Manitoba Division of the Canadian Anaesthetists' Society will be a dinner meeting at the Medical Arts Club, Tuesday, March 4, at 6.15 p.m.

Programme

1. Anatomical Considerations of Spinal Anaesthesia.
   Dr. I. MacLaren Thompson, Professor of Anatomy, University of Manitoba.
2. Practical Points for the busy Anaesthetist.
   Dr. D. G. Revell.
3. Business Session.

Report of Meeting

At the February meeting of the Manitoba Division of the Canadian Anaesthetists' Society, Dr. H. Rice, of the Department of Physiology of the Manitoba Medical College, presented a most interesting and instructive paper entitled "Modern Concepts of Respiratory Control." After outlining briefly the physiology of the periodicity of respiration Dr. Rice spoke about the recent physiological advances in respiratory control. This was followed by a spirited question and discussion period.

Anaesthesia in Obstetrics

Marjorie R. Bennett, M.D.

Department of Anaesthesia, St. Boniface Hospital, St. Boniface

The development of anaesthesia has been responsible for remarkable advances in surgery. The well known risks of anaesthesia are more than compensated for by the good that results from surgery. Nevertheless there has been a revival of methods of regional nerve block to try to eliminate the complications resulting from deep general anaesthesia. Results have been very gratifying. Long extensive operations may be performed with a minimum of shock, perfect relaxation, almost no danger from complications or accidents other than those connected with the surgery itself. By far the most important anaesthetic complication in obstetrical cases is inhalation of vomitus. This occurs much more frequently than in surgical anaesthesia, and its effects are most serious. In a series of 14 reported cases, 5 died. Local anaesthesia has long been recognized as the safest anaesthesia, and its scope is being widened greatly by the use of nerve blocks and sympathetic blocks. Such methods can be applied to the relief of obstetrical pain with even more reason, for here we have not only the safety of the mother to think of but the well-being of the foetus. Depression and anoxia must be avoided if our babies are to be saved from cerebral damage incident to delayed breathing at birth.

Just how great is this danger to the foetus from analgesic drugs and anaesthetics? Practically every drug is known to pass into the foetal circulation. Other factors contributing to anoxaemia in the newborn are: age and parity of the mother, duration of labor, type of delivery, and less frequently, prematurity, premature separation of the placenta, bleeding placenta praevia, short cord, prolapsed cord, torsion, knot, kink, or compression of the cord. So drug or anaesthetic depression is not the only cause of asphyxia or anoxia. In fact, F. C. Irving, of Boston, reports that the routine use of barbiturates with scopolamine has been accompanied by a lowering of the stillbirth and neonatal death rate, attributed to a more conservative policy in the conduct of labor. Early operative intervention which had been resorted to sometimes because of the suffering of the patient was avoided. In the full term infant which has not suffered the stress of a long labor the analgesic and anaesthetic well administered is of little consequence, but to the premature child or the foetus that has stood a severe test it may be the decisive factor in determining whether the child will survive the delivery or not. The influence of anoxia extends far beyond the first week of existence. Darke, of New York, has studied the after results of severe asphyxia in babies from 25,000 deliveries. The intelligence quotients up to the 11th year were compared with the intelligence quotient of a parent or sibling, and as a rule they are retarded in after life. Even full term babies may be harmed by sedation. Henderson maintains that whereas 98% of all babies born of unnarcotized mothers breathe immediately after birth, of those born of narcotized mothers from 30 to 60% exhibit a more or less prolonged period of apnoea. Although most of the babies are resuscitated, many never breathe, others die in a few days of persisting atelectasis and pneumonia, and still others suffer such degrees and duration of cerebral asphyxia that permanent degenerative changes in the brain and lifelong neurologic defects result.

Should pain relief be considered, if it adds to the risks of a normal physiological process? Yes, very definitely. Fear of the pains of labor is a contributing factor in childless marriages and one of the major causes of one child families in our present civilization. It is believed that some cases of slow dilatation of the cervix with prolonged first stage, and some cases of internal contraction ring are nervous in origin, and that fear has a definite inhibitory action on the normal progress of labor. Some patients never regain their confidence after a first confinement, and live in constant dread of another pregnancy. This should not be the case. In the past a large number of women had very easy labors. This is also true in the present. Each patient should be individualized, particularly as regards the type of pain relief that is suitable to her particular case. Obstetric analgesia begins with the patient's first visit to her obstetrician. He must impress on her the fact that she is undergoing a normal process, and he must give her confidence in himself. An explanation of the changes to be expected as the pregnancy progresses, and later a description of the process of labor itself will do much to remove her fear and gain her co-operation. No special type of analgesia should be promised before a woman goes into labor but if we can promise her that we will relieve **most** of her pain we will reduce to a minimum this fear of childbirth, and give to women many hours of freedom from worry.

Many drugs and agents are used, and although the drugs themselves are important, the time in labor when they are administered and the doses used are of more significance. It should be more generally recognized that signs of anoxia in a mother are not uncommon under the influence of analgesia, and oxygen should be administered to patients who exhibit pallor, cyanosis, or hypotension, or if the foetal heart sounds are slow. Ephedrine is occasionally necessary. I will mention the methods of relieving the pains of first stage briefly. Morphine and Scopolamine were once popular. They produce amnesia in a high percentage of cases but the foetal asphyxia rate is high. Morphine tends to prolong labor. Pantopon and Scopolamine act similarly but there is less respiratory effect. Heroin also gives less severe asphyxia than morphine. The barbiturates give satisfactory analgesia and amnesia. There is less foetal respiratory depression than with the opiates, but confusion and restlessness occur. Seconal, sodium amytal and nembutal are broken down in the liver and should be cautiously given if there is liver damage. Morphine and barbiturates have a synergistic action, and when combined, the depression is prolonged. Doses should be carefully adjusted to individual requirements. It is undesirable to produce loss of consciousness and it is not necessary from the standpoint of relative comfort. Apomorphine has recently been used in doses of 1/100 gr. to control excitement and results have been encouraging. With paraldehyde amnesia is good and there is a minimum of restlessness. Babies are definitely depressed. It is better to combine with a local than with general for delivery. Rectal avertin may delay labor and there may be serious foetal depression. Rectal ether is cheap and easily administered and can be given in the home by an untrained person. It gives a good degree of efficiency with reported safety, but a large percentage of infants are born apnoeic. Demerol is considered safer than the other analgesics but less effective. Alone it does not produce amnesia. Analgesia is present in 60%. Used with scopolamine, results are better. Excitement is less than with barbiturates, and resuscitation is less than with morphine. Thirty-six per cent develop mild reactions. Occasionally shock like reaction occurs. The general inhalation anaesthetics may all be used as analgesic agents during the first stage of labor. Nitrous oxide is the most frequently used and may be administered by the patient or by an attendant. Oxygen is limited during administration but this is intermittent and if well timed, results are good. It can be used for terminal delivery in short uncomplicated cases. Chloroform is a dangerous anaesthetic and is seldom used except in the tropics, where pentothal seems to be replacing it. Ether is too irritating and slow to be very useful as an analgesic except in combination with choloroform. With a mixture of the two we can obtain rapid semianalgesia and if necessary change over to ether for an operative delivery. Ether given over a long period of time, particularly if the patient has had preliminary medication, has a tendency to cause anoxia of the child. In a study of more than 6,000 newborns, Cole and Kimball collected the following information. When a patient is kept in first or second stage anaesthesia with ether for varying periods of time, mild asphyxia occurs in 4%. When third stage is maintained for less than five minutes, 16.5% of the babies have mild asphyxia and 5.6% have severe asphyxia. If third stage lasts between five and ten minutes, asphyxia is mild in 21.4% and severe in 15.1%. Ten to fifteen minutes of third stage anaesthesia causes 30% mild and 15.7% severe asphyxia, and when third stage lasts for more than fifteen minutes, 32% of babies are severely asphyxiated. The habit of keeping a patient under ether or any other general anaesthetic for too long a period before delivery as while waiting for the obstetrician to arrive is to be condemned. Divinyl ether is quick acting and

useful for multiparas. Cyclopropane is very satisfactory either for analgesia or for actual delivery. It is quicker acting than ether, and is much more pleasant for the patient. High concentrations of oxygen can be given even in deep anaesthesia. Pure oxygen should be given before the cord is cut. Sodium pentothal was given for 1,415 deliveries at Johns Hopkins and found very good for low forceps but not suitable for spontaneous deliveries. They found very little pentothal in the foetal circulation in the first 5 minutes. In 10 to 12 minutes, it increased to the same concentration as in the mother's blood. It should not be administered till actual delivery is attempted.

To avoid the depression and toxic effects of general anaesthesia on mother and foetus the following local and regional methods may be used. Continuous caudal anaesthetic is suitable both for labor and for delivery. Hingson, in 1945, had records of the results of 47,000 continuous caudal anaesthetics for labor. Pain relief if properly administered is complete. The average spontaneous breathing time was 13 seconds and the average lusty crying time was 22 seconds. Foetal mortality was 1.7%. There were 19 maternal deaths, 10 of which were due to obstetrical or medical causes, 9 to anaesthesia, some of which were due to misuse of the anaesthetic. There is diminished blood loss, and rapid convalescence. Caudal block is suitable in about 52% of labors, and with good selection of cases results should be better than in many of the early reported series. It has a therapeutic effect in eclamptic patients. Hingson reports its use for 42 eclamptic patients in a convulsive state. Forty of these delivered live babies without maternal mortality. Maternal death rate due to anaesthesia under caudal anaesthetic is 1 in 5,222 cases. No figures are available for the anaesthetic death rate in obstetrics as a whole but Waters and Gillespie report 13 anaesthetic deaths in 44,984 surgical cases, an incidence of 1 in 3,453 cases. Caudal, besides being applicable in only about half of all obstetrical cases, requires constant supervision by a well trained anaesthetist. Spinal anaesthesia, using a long acting drug such as nupercaine, gives relief from labor pains for 3 to 5 hours. Used with glucose, accurate saddle block can be obtained. Repeated injections are necessary in about 32% of cases. Circulatory disturbances occur less frequently with this technique because of the low level of anaesthesia, and are readily controlled with ephedrine. Continuous spinal is also used for labor pains and delivery. There is much evidence that pregnant women are particularly sensitive to spinal. Many cases of sudden and fatal collapse have been known. More of these could be avoided if it were realised that obstetrical procedures including Caesarians can be performed under slightly more than half the dose required for surgery. Local infiltration, pudendal block, and parasacral block are very satisfactory for delivery. Dr. Beatrice Tucker, of the Chicago Maternity Centre, and her associates have used these forms of analgesia for home deliveries over 13 years, and have reduced post delivery morbidity to one of the lowest levels recorded in the United States. Pudendal block is suitable for spontaneous delivery, episiotomy or low forceps. Paracervical anaesthesia can be used prior to the above injections to cut out uterine pain. Parasacral anaesthesia is suitable for any type of forceps delivery, cervical incision or internal manipulations.

In choosing the method of pain relief to use, the anticipated duration of labor and the severity of the pain are the important factors to consider. The various gases are useful where the patient arrives so late that delivery will occur before amnesic drugs would have effect. Otherwise the analgesic or amnesic drugs are more practical for the first stage. For delivery, one has to choose the anaesthetic which is available in the particular surroundings. Gas and/or ether is satisfactory depending on the condition of the patient and the obstetric procedure to be carried out. Pentothal is good for outlet forceps. If a depressed infant is delivered, oxygen should be administered within the first 4 minutes either by intratracheal catheter or infant gas mask so that the color remains pink while resuscitation measures are being carried out. Caudal is the best pain relief we know for both first and second stage if it is available and if it is suitable to the particular case. Paravertebral block, spinal, and peridural block are specialized procedures which would be suitable in certain hands. Local infiltration, pudendal and parasacral block, and paracervical anaesthesia are excellent in all cases except where haste is required, but especially are local and nerve block procedures indicated if labor has been long and considerable amounts of sedative have been given, if labor is premature, if difficult surgical obstetrics is contemplated, if maternal complications are present, and if caudal is not available.

Relief with local methods is prompt. Patients become calm and co-operative immediately after injection. The technique is easily mastered. It is the cheapest form of anaesthetic. Maternal complications are minimal and the baby is not narcotized. Bleeding is less and convalescence is improved. The obstetrician can administer his own anaesthetic without depending on the presence of an anaesthetist. It is not often that one is able to deliver a baby with the first pain after he is scrubbed. The ten minutes or more spent waiting beside the delivery table could be used to advantage in infiltrating the perineum or doing a

pudendal block. Thus one could become proficient in the use of a method which would be invaluable in certain poor risk cases. At the same time it would soon become apparent that the babies were consistently bright and active, and the convalescence uneventful. One cannot help being impressed with the difference in babies and mothers when making use of local anaesthesia for the first time. It is easily supplemented by minimal amounts of general anaesthetic if technique is uncertain at first or in certain patients who are excessively nervous. It is applicable in the home case as well as in the hospital case. Greenhill's book on Obstetrics in General Practice gives an excellent account of the details of the technique.

M. R. Bennett.

The Physiology of Refrigeration Anaesthesia

P. C. Lund, M.D.

Allen[1] the chief pioneer of refrigeration anaesthesia has shown that cold can be preservative as well as destructive of life and that the resistance of life to cold generally diminishes as the zoological scale is ascended. The injurious effects of cold are governed by factors such as: degree of cold, duration of cold, hydration of the tissue involved and supercooling. Supercooling is a property of protoplasm which permits of chilling to several degrees below the true freezing point without ice formation.

There is much misconception among members of the medical profession in regard to the effects of cold applied locally to the living human organism. This is largely due to the loose manner in which the terms "Refrigeration," "Cooling" and "Freezing" are used in the medical literature.

Crymotherapy is defined as the therapeutic use of cold.

Refrigeration is usually defined as the reduction of the temperature of the surface of a tissue to 0° to 10°C.

The term **"Cooling"** is used for reduction of temperatures from the normal to any level above 10°C.

Freezing is the reduction of temperatures of tissues to such a level that the intercellular and intracellular water freezes. This usually occurs at -1 to -20°C.

At the present time refrigeration is utilized in the field of medicine for two distinct different purposes. First, to produce anaesthesia, usually in combination with a tourniquet, for certain amputations. Second, to enable survival of anoxaemic tissue. This is accomplished by lowering the metabolism of the tissues which have a deficient blood supply, and so keep them alive while a collateral circulation develops.

The chief fundamental chemical and physiological mechanisms involved in crymotherapy and refrigeration are briefly as follows:

1() Hemoglobin[2] will not release its oxygen at temperatures below 10°C. However, at this temperature metabolism practically ceases so that the greatly diminished oxygen needs may be met by the oxygen dissolved in the plasma.

It is commonly known that exposure to cold can cause trench foot and emersion foot and either may be followed by fibrosis or even gangrene. In these two conditions, however, the temperature is not constantly low. At 10°C both anabolism and catabolism cease, whereas from 10°C -27°C the accumulating products of catabolism limit the period of survival[2]. The swelling which follows the exposure to cold and which is the cause of fibrosis or gangrene in trench foot or emersion foot is believed to be due to catabolites which strongly attract fluid into the spaces, rather than do damage to the walls of blood vessels with resultant increased transudation. In human experiments the effects of experimental frost bite have been completely abolished by the use of local vaso constrictors, while in the control area, the skin sloughed and left permanent scarring. This indicates that the destructive effects of cold are due to odema occurring after exposure.

(2) Cold anaesthetizes not only nerves but also protoplasm, thus it suspends all vital processes. It therefore differs from all other known anaesthetic agents which only act on nerve tissue. Tissues chilled near to freezing are incapable of responding to any stimulus or injury with any kind of reaction either nervous or chemical. Thus theoretically at least refrigeration makes tissues oblivious to both trauma and time.

(3) There is a preservation of blood vessel wall cell-vitality and inhibition of blood enzymes by refrigeration which prevents or decreases the incidence of thrombosis. This should obviate any danger of the use of a tourniquet.

(4) Peripheral ganglion nerve cells entirely lack the sensitiveness to asphyxia that characterizes the brain and spinal cord cells. The cells are also more resistant than their fibres which can be regenerated to a certain extent. Thus these nerve cells withstand ligations as long as do the tissues in which they are embedded.

(5) It is generally believed that freezing to such an extent that intracellular and extracellular water freezes (-1 to -20°C) causes irreversible changes in the cell substance leading to death of the tissue[3].

(6) Cold checks bacterial multiplication and toxin formation as well as suspending proteolysis.

(7) Cold causes a retardation of blood clotting which theoretically at least contributes to prevent thrombosis and embolism.

(8) The normal effect of cold is to reduce capillary permeability.

Living tissues permeated with flowing blood form an efficient insulator so that an icebag produces radical refrigeration only to a depth of 1.5-2 cms. Beneath this there is a larger zone of moderate temperature reduction. A still deeper influence is exerted through vasoconstriction and reflex nervous sedation, so that an icebag on the abdomen can produce some degree of temperature reduction and relief of pain in the peritoneal cavity.

An important factor which must not be overlooked in the conduction of refrigeration is the fact that the local tissues involved are part of a highly organized body and that their reactions are strongly modified by central control, e.g. chilling of one part of the body causes vasoconstriction over the entire surface.

The Mechanism of Heat Control

The heat regulating centre in the hypothalamus is influenced reflexly by impulses from the skin and by the temperature of the blood flowing through it. The hypothalamic centre transmits sympathetic impulses to cutaneous vessels, sweat glands and pilomotor nerves as well as exerting a calorigenic effect by stimulating the thyroid and adrenals. The normal reaction to maintain normal temperature is to increase heat production by shivering with utilization of glycogen and glucose of blood and vasoconstriction, and other mechanisms to reduce heat loss. Thus death from exposure may be due to exhaustion rather than primarily the fall of temperature.

Fay's artificial hibernation[2] which makes use of anaesthetics or narcotics to dull the natural defences has made possible the reduction of shivering to a minimum and patients have been kept safely at rectal temperatures near 80°F for 5-8 days. Similar principles have been employed by the Russians in their hibernation experiments and for treating patients exposed to prolonged periods of low temperatures.

The most radical local action is obtained with the aid of a tourniquet which immediately abolishes all circulating response and permits rapid chilling of tissues and nerves to a non-reactive level. If freezing is avoided, the abolition of circulation obviates the destructive effects of cold and facilitates the dormant state of tissue preservation. Tissues segregated by a tourniquet are in the same state of suspended animation and prolonged preservation as tissues in an icebox. They are not only independent of neurovascular reactions but are also in a large degree immune to pressure and other injurious factors.

It also stops the influx of warm blood and at the same time prevents chilling of the rest of the body by preventing the outflow of cooled blood. This is an important consideration since the tourniquet thus prevents stimulation of the heat regulation centre and the reactions which it normally brings about.

Other benefits and advantages claimed for refrigeration anaesthesia are as follows:

1. The Avoidance or Decrease of Shock

This is due to the anaesthetization of protoplasm, absence of pain during operation, combined with absence or reduction of pain postoperatively. These factors also eliminate or reduce the need for sedative drugs. In addition no toxic anaesthetic agent is required.

2. Tissue Preservation

Amputations can sometimes succeed at levels lower than is ordinarily considered possible. The chilling with ice packs reduces the extent of gangrene after embolism or thrombosis. The prevention of edema also decreases the danger of necrosis.

3. The reduced temperature post-operatively makes possible control of the rate of healing. This theoretically should make it possible to prevent necrosis of wound flaps due to an attempt to heal more rapidly than the limited blood supply permits.

4. The decreased inflammatory reaction and circulation retards the absorption of toxins from the stump.

The disadvantages are chiefly the length of time required to induce anaesthesia of protoplasm and the cumbersome apparatus necessary.

It is only rarely that a patient is encountered who cannot relatively safely be anaesthetized with one of the modern anaesthetic agents and technics. However, when such a case presents itself refrigeration anaesthesia may be a life saver or at least render one of the advantages mentioned above. As evidenced by the results reported in the medical literature crymotherapy or the therapeutic use of cold has a much broader field of usefulness than commonly believed.

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CARDIOLOGY

Edited by J. M. McEachern, M.D. and R. E. Beamish, M.D.

Abstracts

Cardiac Irregularities

1. Paroxysmal Tachycardia. Transitory Flutter and Fibrillation. Acta Med. Scandinav. 125: 295-325, 1946. Otto Jervell, Oslo.

The author reviewed 168 cases of paroxysmal tachycardia observed at the Louisenberg Hospital during the five-year period 1940-1944 inclusive in an effort to clarify the genesis of this condition. The classification and incidence of the various types encountered are as follows:

Rhythm	Number	Percentage*
Paroxysmal sinus tachycardia	9	5.3
Paroxysmal auricular tachycardia	7	4.2
Paroxysmal auricular flutter	25	14.9
Paroxysmal auricular fibrillation	81	48.2
Paroxysmal nodal tachycardia	3	1.8
Paroxysmal ventricular tachycardia	1	0.6
Paroxysmal tachycardia (not electrocardiographically recorded)	42	25.0

In 70 patients (41.7%) no signs of organic heart disease were found. In 98 patients (58.3%) there was associated degenerative heart disease in 67, rheumatic in 16, thyrotoxic in 11 and syphilitic in 4. Transient auricular flutter or fibrillation were observed in 33 patients without evidence of organic heart disease.

From clinical observation of these patients the author concludes that in these abnormal rhythms one must consider a predisposing factor and a provocative factor. The predisposing factor is said to consist of structural alterations of organic or functional nature in the specific muscle of the heart; these alterations may be caused by degenerative or rheumatic affections, infections, adiposity, and other disorders. The provocative factor is to be found in derangements of the vegetative nervous system, most commonly in an increased sympathetic tone.

A number of case histories are included in support of this argument.

Comment

Paroxysmal tachycardia is a common condition. It ranks second only to premature beats as a disturbance of rhythm. The above article serves to remind us that there are several varieties of this abnormal rhythm but leaves one with an erroneous concept of the incidence and importance of the various types. This is due to the fact that a large number of the author's patients came from homes for elderly women which are associated with the hospital where the study was conducted. Naturally patients in this age group would show a high percentage of degenerative disease in association with the tachycardias. The following observations are accordingly appended:

(1) Paroxysmal auricular tachycardia. This is the most common and least serious type of paroxysmal tachycardia. It has a significance comparable to premature beats and is found more often in normal than abnormal hearts. It occurs commonly in the younger age group and the usual attack consists of a sudden onset of a regular tachycardia with a rate of 140-180 beats per minute, lasts a few minutes, hours or days, and then stops as suddenly as it began. Though seldom associated with organic heart disease these attacks may be most distressing and if misinterpreted by the patient or not prevented by the physician, may lead to grave psychological disturbances of the anxiety or depressive types. Some authorities consider this rhythm to be of neurogenic origin and it is obvious that a frightening symptom occurring in an already nervous subject may lead to the establishment of a vicious circle. Reassurance after a complete examination is accordingly an important part of treatment.

Relief of an attack frequently follows simple measures which produce vagal stimulation such as pressure over the right carotid sinus, both carotid sinuses, or both eyeballs, changes in posture, holding the breath or gagging. If drug therapy is necessary 3 to 5 grains of quinidine may be given every two or three hours until the attack stops. Prevention of attacks may be achieved by elimination of responsible factors such as fatigue, overexertion, anemia, anxiety, over-indulgence in tobacco, tea, coffee, or food, and the appropriate treatment of indigestion, constipation or other associated disorders. Quinidine in the above dosage given three or four times a day is helpful as a prophylactic.

(2) Paroxysmal nodal tachycardia. This uncommon rhythm has the same clinical significance as the auricular type. In this case, the impulse arises in the region of the auriculoventricular node instead of outside the sinoauricular or auriculoventricular node as it does in the auricular form.

(3) Paroxysmal auricular fibrillation and flutter are usually associated with organic heart disease and may be a prelude to permanent abnormal rhythm. They may, however, occasionally occur in patients with apparently normal hearts following violent exertion, mental or physical trauma, exposure to various toxins, and in non-cardiac diseases.

*These figures were calculated by the reviewers and do not appear in the original article.

(4) Paroxysmal ventricular tachycardia is an uncommon but usually serious irregularity. If evidence of organic heart disease is not found a thorough search for noncardiac disease should be carried out. This rhythm calls for intensive quinidine therapy to obviate the danger of ventricular fibrillation.

(5) Paroxysmal sinus tachycardia is rare and is not listed among the paroxysmal tachycardias by all authors. As a rule ordinary sinus tachycardia from whatever cause is gradual in onset and offset but we have recently observed a patient in whom the attacks were clinically indistinguishable from paroxysmal auricular tachycardia.

Although indentification of these rhythms is largely dependent on electrocardiographic records taken during an attack they should be suspected from a history of rapid palpitation especially if sudden in onset and offset. When instrumental assistance is not available one can be guided by the presence or absence of signs of organic heart disease. Paroxysmal tachycardia in an apparently normal heart is likely of auricular or nodal origin; in an obviously abnormal heart, it is likely auricular flutter if it is regular and auricular fibrillation if it is not.

2. A Study of the Subjective Sensations Associated with Extrasystoles. Am. Heart J. 31: 254-259, (March), 1946. Edward M. Kline and Thomas G. Bidder, Cleveland.

It is pointed out that the subjective sensations sometimes associated with extrasystoles are usually attributed to the first normal heartbeat following the compensatory pause. This beat is an unusually large one owing to the increased filling of the heart during the long diastole and therefore could reasonably be suspected as being the cause of the sensation. In 1942 Ungerleider and Gubner, contrary to the general opinion, proposed that the sensation was due to the premature beat itself. To elucidate this point the authors studied individuals who experienced some type of subjective symptoms with their extrasystoles. Many persons were seen who had vague precordial sensations and extrasystoles, but in these patients there was no close association between the extrasystoles and the subjective complaints. Many others were completely unaware of their extrasystoles. However, eleven persons were found who were conscious of practically all extrasystoles, and, in these subjects, 167 premature beats were studied.

The method employed was as follows: while simultaneous electro-cardiogram, phonocardiogram and radial pulse tracing were being recorded the subject pressed a signal key the instant customary symptoms were experienced. The reaction time of each subject to tapping over the precordium with an instrument was also determined. It was found that all patients reacted to the perception of their extrasystoles in a remarkably constant manner. Every subject pressed the signal key during the pause after the premature beat not only before the appearance of the first normal beat, but before the next beat that would have occurred if the rhythm had not been interrupted. It was concluded therefore that the sensation was due not to the powerful first normal beat, nor to the pause, but to the extrasystole itself.

GYNECOLOGY

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

Radium and X-Rays in the Treatment of Diseases of Women

W. T. Dingle, M.D., M.R.C.O.G.

Both radium and x-rays were introduced as therapeutic agents about fifty years ago and since that time have been used in treating many of the diseases peculiar to women.

Radiation is most important in the treatment of cancer of the cervix. It is valuable as a means of controlling menopausal bleeding and in treating endometriosis. As an adjunct to surgical treatment it is useful in dealing with chorionepithelioma, cancer of the body of the uterus and cancer of the ovary. Less well established is its value in the treatment of uterine fibroids, menorrhagia due to ovarian dysfunction, pelvic infections, etc. A fairly good general rule is to avoid radiation in the treatment of benign conditions in women less than forty years of age.

The purpose of this paper is to discuss briefly the use of radium and x-radiation in the treatment of these conditions, without going into detail with regard to technique.

Therapeutic Application in Benign Conditions

It is possible, either by the internal application of radium or the external use of x-radiation, to depress ovarian function without harming the normal tissues of the pelvis, due to the relatively high radiosensitivity of the ovaries. Upon this fact is based the treatment of several benign conditions, the effects being obtained indirectly through the action on ovarian tissue.

1. Irregular Hemorrhage at or About the Menopause

Some women of menopausal age with irregular

or excessive uterine bleeding show improvement following the use of endocrine preparations, or after curettage. Radiotherapy, however, offers the most efficient means of treating these cases.

It can be carried out by insertion of radium into the uterine cavity, or by x-radiation. Whichever method is used, a preliminary curettage is advisable in order to confirm the diagnosis and, particularly, to prove the absence of malignancy.

When both are available, the use of x-radiation is preferable to that of radium. In favour of the application of radium is the fact that it is convenient to use immediately following curettage, treatment being completed within a few days. However, radium sometimes causes such complications as vaginal or cervical stenosis and entails a definite though small mortality. X-radiation is safe.

2. Endometriosis

The production of an artificial menopause is of value in treating endometriosis. It is indicated in cases of recurrence of the growth following conservative treatment, in occasional cases of widespread growth and in other cases when the growth is inaccessible to surgery. The results of radiotherapy are good. The fact that many of these patients are less than forty years of age is the chief contra-indication to its use. However, the relief of pain justifies the use of this method of treatment in some relatively young women.

3. Uterine Fibroids

Regarding the treatment of fibroids by radiation instead of surgery, there is the widest divergence of opinion. Many of these tumors are small and never give rise to disturbing or dangerous symptoms, disappearing after the normal menopause. In many other cases, hemorrhage with resultant anemia is the only indication for treatment. This can be controlled by the use of either radium or x-rays.

The full effects of radiation are obtained only after an interval of six to eight weeks, bleeding being controlled after one or two periods. Its chief action, both as regards the hemorrhage and the tumor, is thought to be an indirect one through the ovaries. As a rule, tumors which have been growing rapidly disappear rapidly and those which have been growing slowly recede slowly.

Indications as regards the choice of x-rays or radium are the same as in cases of menopausal bleeding, with one exception. In the treatment of fibroids x-radiation is more clearly indicated because of the distortion produced by the tumor. This often causes the ovaries to lie at an increased distance from the uterine cavity, with consequent diminution of the amount of radiation received from intra-uterine radium.

There are some definite contra-indications to the treatment of fibroids by radiation, which should be emphasized. It is not used in young women, nor in the presence of pregnancy or infection. It is not suitable in the treatment of very large fibroids, or pedunculated subperitoneal fibroids. And it is to be avoided when there is the least suspicion of degenerative or malignant change in the fibroid tumor.

4. Menorrhagia in Young Women

Radiation is used occasionally in the treatment of menorrhagia in young women—the type of menorrhagia associated with no structural abnormality of the pelvic organs and generally considered to be due to ovarian dysfunction. It is only used as an alternative to hysterectomy, when hemorrhage is severe and conservative methods of treatment have failed.

An attempt is made to reduce the length and severity of each menstrual period by the administration of a small amount of radiation once during each menstrual cycle, until the menstrual loss is within normal limits.

Some good results are obtained. It is difficult, however, to estimate the exact amount of radiation required. Instead of a gradual reduction in the amount of blood lost, amenorrhea may develop suddenly. This usually lasts only a few months but severe menorrhagia may develop again as soon as menstruation is resumed. Occasionally, an artificial menopause is produced.

Altogether, it is difficult to be very enthusiastic about this method of treatment, although more consistent results may be obtained with improved technique. At the present time it must be used with caution and only as an alternative to more radical therapy.

5. Pelvic Inflammatory Conditions

Deep x-radiation has been used with considerable success in the treatment of tuberculosis of the pelvic organs. Depression of ovarian function is important in curing this form of the disease. X-radiation has also been used, but with indifferent results, in the treatment of other forms of acute and chronic pelvic infections. The use of radium is contra-indicated.

6. Sterilization

Sterilization because of serious organic disease such as nephritis, severe cardiac lesions or any other condition in which pregnancy is contra-indicated, can be accomplished by means of radiation and it is occasionally used when operation entails undue risk.

7. Benign Lesions of the Vulva

Pruritis and eczema are sometimes treated successfully with small amounts of x-radiation. Kraurosis and leucoplakia do not respond well.

Most benign tumors of the vulva are better treated by surgical means.

Therapeutic Application in Malignant Conditions

1. Carcinoma of the Uterine Cervix

Radium and x-ray therapy are the best means of treating malignant lesions of the cervix. The Wertheim operation or other radical operations have a place in the treatment of early cervical cancer, when performed by experienced surgeons. Generally speaking, however, radiotherapy accomplishes all that surgery can in treating these early cases and can do it with lower mortality. Radical surgery has no place at all in the treatment of later stages of the disease.

There are many different methods of applying radium, the most important being referred to as the Paris and the Stockholm methods. These vary considerably but the essential difference is that by the Paris method radium is applied continuously for seven or eight days, whereas by the Stockholm method two or three separate applications are made during the course of a month or six weeks.

Irradiation of the pelvis with x-radiation is combined with any of these methods of applying radium. It is used either before, during or after the treatment with radium.

Obviously, the procedure adopted in different medical centres varies considerably. The same thing may be said of the amounts of radiation used. Several different techniques have produced good results, particularly in the hands of certain individuals. Lack of standardization of treatment, however, is responsible for the loss of many lives.

Most of the total five-year cure rates reported at the present time are between 30% and 35%. These figures are kept down by the many advanced growths which are treated. In these cases, although cures are seldom obtained, radiation is a useful palliative measure, controlling bleeding and pain to a considerable extent.

2. Carcinoma of the Body of the Uterus

Surgery following pre-operative radiation with radium and x-rays seems to be the best treatment for endometrial cancer, five-year cures being obtained in 60% to 75% of cases. Unfortunately there always are a fair proportion of cases that are inoperable, due to extensive disease, medical infirmities or some technical difficulty. These must be treated by radiation alone, with less favourable results.

The importance of pre-operative radiation is that it materially reduces the chances of dissemination of the tumor at the time of operation. Surgical treatment usually follows about six weeks after completion of radiotherapy and consists of total hysterectomy and bilateral salpingo-oophorectomy. There are no very clear indications for post-operative radiation in the treatment of this disease.

3. Carcinoma of the Ovary

Radical surgery followed by the use of external x-radiation to the pelvis and abdomen, in an attempt to check the development of metastases, offers the best means of prolonging life. There are few cures. Radiation is also used as a palliative measure in the treatment of inoperable cases.

4. Carcinoma of the Vagina

These tumors are usually radiosensitive and respond fairly well to the surface application of radium. It must be carefully applied, as the danger of fistula formation, involving either the rectum or bladder, is considerable.

5. Chorionepithelioma

If the Ascheim-Zondek test remains positive after an interval of two weeks following surgical treatment for chorionepithelioma, x-radiation is indicated. The pelvis and any demonstrable metastases in other parts of the body should be treated. Although this tumor metastasizes rapidly it is radiosensitive and sometimes even widespread disease can be cured.

6. Other Forms of Malignancy

In other lesions, such as sarcoma of the uterine body, carcinoma of the vulva, etc., radiation is of little importance except as a means of palliation in inoperable or recurrent cases.

Complications following the use of radiotherapy in the treatment of malignant pelvic disease.

With radiotherapy there is a primary mortality of 1% or 2%. This is mainly due to acute sepsis following the application of radium in advanced cases of carcinoma of the cervix. Radium is always dangerous in the presence of infection; x-radiation is relatively safe.

In order to avoid these fatalities the preliminary treatment of septic growths is very important. Infection in the cervix or elsewhere in the pelvis must be cleared up before radium is used. Chemotherapy, antiseptic douches and local applications to the growth are of great service. X-radiation prior to the application of radium is also advisable in these cases.

Other complications are seen from time to time. A transient vaginitis followed by stenosis of the upper third of the vagina is relatively common. A mild, transient proctitis is usual. Severe lesions of the rectal wall may develop months later if it has received too much radiation. Injuries to the urinary tract are less frequent, although vesico-vaginal fistulae are sometimes formed.

These complications cannot all be avoided if adequate therapy is to be carried out, but the more serious lesions should be infrequent.

PAEDIATRICS

Edited by J. Graf, M.D.

Pneumococcal Meningitis in Infancy and Childhood

Case Report and Discussion

M. S. Feinstein, M.D.

Pneumococcal Meningitis of infancy and early childhood is one of the gravest diseases of the meninges of this period of life, carrying with it a mortality exceeded perhaps, only by tuberculous meningitis. Together with the meningococcus and Haemophilus Influenzal Bacillus the pneumococcus represents one of the three commonest causes of meningitis in this age group[1]. With the advent of the newer chemo-therapeutic agents the mortality from meningococcal meningitis has been reduced to 6—15% according to age[2]; and that from influenzal meningitis from 99% to 20%[3, 4]. However the results obtained in pneumococcal meningitis are not as encouraging. Prior to the use of Sulphonamides, Silverthorne[2] reports 117 cases treated in Toronto with 100% mortality and 31 cases treated with Sulphonamides with 93% mortality. Hartmann et al[4] reported 26 cases treated with Sulphonamides with a mortality of 65% and eight cases treated with Sulphonamides and Penicillin with four deaths or an overall mortality of 61.7%. There have been 10 cases of pneumococcal meningitis since 1939 treated at the Children's Hospital in Winnipeg with Sulphonamides with only 1 recovery. The results obtained in adults have not been more gratifying; the mortality varying from 58.3% to 64% in cases treated with Penicillin and Sulphonamides[5, 6, 7]. Recently, however, Waring et al[8] from Johns Hopkins reports a series of 12 cases treated in infants from 2-16 months with Penicillin and Sulphonamides and only 1 death. Also, Smith, Ruthie and Cairns[9] at Oxford report a series of 38 cases in adults treated with Penicillin and Sulphonamides with only 9 deaths or a mortality of 23.6%. In our small series of 4 cases at the Children's Hospital in Winnipeg treated with Penicillin and Sulphonamides we have had only 1 death.

The varying reports in the recent literature indicate that the use of Penicillin together with the Sulphonamides is a step forward in the treatment of pneumococcal meningitis. However it is "by no means a matter of simple routine[9]" and important factors in diagnosis and treatment must be emphasized if the mortality and morbidity of this disease is to be reduced.

A case of pneumococcal meningitis with remission successfully treated is outlined and important points in diagnosis and treatment are presented:

Case Report

Baby D. K.—Age 9½ months, was admitted to the Winnipeg General Hospital, July 18, 1946.

History

Fever began July 11 (temp. 103), the child was irritable, restless and had symptoms of an acute upper respiratory infection with cough and nasal discharge. The child seemed to improve on Sulphonamides and his temperature was normal on July 14. On July 15 fever began again and it became swinging in type. He became very restless, irritable, refused his feedings and began to vomit. His condition grew steadily worse and he was admitted on July 18. Past History, Developmental History and Family History were non contributory.

Examination on admission—revealed a pale lethargic unresponsive child with his eyes closed. His pupils reacted slowly to light and marked photo-phobia was present. The throat was injected. The heart and lungs were normal. The liver was palpable 3 fingers below the costal margin. The reflexes were all equal and active and a suggestion of neck rigidity and fullness of the anterior Fontanelle were evident. The temperature on admission was 104.6.

July 18—(Night of admission) Lumbar Puncture. The fluid was clear and pressure normal. 250 cells were reported, 50% polymorphs and 50% lymphocytes. The child was started on 10,000 units of penicillin every three hours and 45 grains of sulfadiazene per day systemically. No intrathecal penicillin was given. White blood count revealed 47,500 cells with 58% old polymorphs and 18% young polymorphs and 10% lymphocytes. Culture report of spinal fluid—"pneumococcus."

July 19—Lumbar Puncture done; spinal fluid was turbid (no pressures recorded). 3572 cells reported with 95% polymorphs, 1% monocytes and 4% lymphocytes. 5000 units of penicillin was given intrathecally. Spinal fluid culture was negative after 72 hours.

July 20—Lumbar Puncture—fluid still cloudy but not as turbid as previous day. 400 cells reported with 80% lymphocytes, 15% polymorphs and 5% monocytes. The child appeared much improved and the temperature was settling down. Neck rigidity and photo phobia were still present. Culture report negative.

July 21—Child improving. Temperature 102. Still quite restless and irritable. No Lumbar Puncture done.

July 22—Temperature still elevated. Rigidity of neck and photo phobia present. Child seemed improved. Taking fluids by mouth. No Lumbar Puncture done. White blood count 24,700 cells with 26% old polymorphs, 41% young polymorphs, and 26% lymphocytes.

July 23—Lumbar Puncture done. 101 cells reported with 65% polymorphs and 35% lymphocytes. No intrathecal penicillin given. Culture reports negative. Temperature normal. Condition improved.

July 24—Condition improving. White blood count 15,000 cells with 44% old polymorphs, 12% young polymorphs and 40% lymphocytes. No lumbar puncture done. Temperature normal.

July 25—Temperature 103. Child very restless and irritable. Cisternal puncture done because a block was suspected. However, a spinal puncture done following this procedure revealed a positive Queckenstedt and same number of cells. It was felt that no block was present. 828 cells were reported with 87% polymorphs, 12% lymphocytes, and 1% monocytes. Culture report (2 days). Pneumococcus type 19. 5000 units penicillin given intrathecally.

July 26—5000 units injected intrathecally. 572 cells reported with 85% polymorphs, 14% lymphocytes and 1% monocytes. Culture report negative. Temperature falling. Child still quite irritable with neck rigidity and photo phobia.

July 27—5000 units penicillin injected intrathecally. 319 cells reported with 71% polymorphs, 28% lymphocytes and 1% monocytes. Culture report negative.

July 28—5000 units penicillin intrathecally. 300 cells reported. (No differential). Culture negative. Condition improving.

July 29—5000 units penicillin intrathecally. 174 cells reported. Culture negative.

July 30—5000 units penicillin intrathecally. No cell report, culture negative. Condition improving. Temperature normal. Child brighter. Rigidity of neck and photo phobia improved.

July 31 — Condition improving. No lumbar puncture done.

Aug. 1—Condition improving. Temperature normal. Sensorium clear; child smiling, talking, sitting. Sight and hearing seem intact. No lumbar puncture done.

Aug. 3—Lumbar puncture done. 80 cells present with 85% lymphocytes, 10% polymorphs and 5% monocytes. Culture report negative. Condition improving.

Aug. 5—Child discharged as improved. Follow up to date.

A letter received in December, 1946, from the parents in Vancouver, state that the child was normal in every respect.

Discussion

Diagnosis

The diagnosis of pneumococcal meningitis must be made early if the mortality from this disease is to be reduced. The symptomatology in infancy may be deceiving. One can not rely upon a negative Kernig sign. There may be nothing more than the persistence of fever, anorexia, irritability or a bulging fontanelle. Other features include drowsiness, alternating with marked irritability, photo phobia, a high pitched cry or a vacant look in the eyes. The type of respiration may be of assistance varying from a rapid shallow type to a very depressed Biot type (rapid respiration with rythmical pauses) Convulsions and vomiting are of greater diagnostic import. If any of the above are present and we are at all suspicious of meningitis a lumbar puncture should be done without delay.

In early childhood the symptoms and signs of meningitis may be masked by the primary infection. The child may already be ill with pneumonia, otitis pharyngitis, septicemia or acute sinusitis and the onset may be very insidious.

Pneumococcal infections tend to show many organisms in the spinal fluid with relatively few cells and at times such fluid may even fail to be turbid especially when sulfonamide therapy has been instituted for the original infection. It is important that even clear fluids should be cultured if we are suspicious of meningitis. This is well exemplified in this case which had been on sulfonamide therapy prior to admission and which showed a clear spinal fluid on first lumbar puncture but grew a colony of pneumococcus within 24 hours.

Treatment

Use of Sulphonamides

Once Lumbar Puncture has been done and the diagnosis of a meningitis has been established, the patient should be started on maximum amounts of sulfadiazene without waiting for culture reports. This should be given in dosages approximating 4 gr. per lb. body weight per 24 hours. Sulfonamides in this dosage are well tolerated by children, providing an adequate intake of fluid is maintained and steps are taken to make sure the urine is kept alkaline. Hartmann[1] allows approximately 15 cc. of molar sixth lactate solution per lb. body weight per 24 hours and feels it will assure a urine P.H. of 7. He also suggests that the initial dose of sulfadiazene should be given as the sodium salt in a subcutaneous injection, together with this 14 cc. per lb. of molar sixth lactate should be given as an initial dose. He advises continuing with this procedure every 8 hours until high levels

in the blood have been obtained as determined by actual estimation. The reason he uses the subcutaneous method is, he feels that desirable high blood levels (30 mg.) are built up very quickly, good urine flow is assured and there is avoided the very high peak blood levels which an initial intravenous administration causes thus perhaps avoids early precipitation of drug in the kidney when the urine is still concentrated, and acid. We have had no experience with the use of subcutaneous sulfonamides and our policy as soon as diagnosis has been established, is to cut down on a vein of the infant or child and start a continuous intravenous drip with Molar Sixth lactate and 5% glucose and saline in proportion of one to two allowing 20 cc. per lb. body weight per 24 hours. The sodium salt of sulfadiazene is injected into the side tube every 4 hours. This is continued until the patient can tolerate sulfonamides and adequate fluids by mouth. The dosage as suggested may be reduced should laboratory reports prove it to be a less serious form of meningitis. The sulfonamides should be continued in maximum dosages until culture has been negative for 24 hours, when it may be reduced by one-third. This should be continued until the child has shown a favorable response (approximately 2-3 weeks).

Use of Penicillin

The value of penicillin both intrathecally and systemically in the treatment of pneumococcal meningitis has been definitely established.

As soon as the diagnosis of purulent meningitis has been determined by lumbar puncture, 5000 units of penicillin should be injected into the same needle as used for the diagnosis. If, subsequently, the case should prove to be one of the other forms of meningitis this method of employing penicillin may be discontinued. Penicillin should also be started intramuscularly in dosages of 20,000 units every three hours. It is of prime importance that penicillin in adequate amounts be made accessible to all parts of the cerebro spinal pathways and that this level be maintained for at least 5 days, or longer, depending on the response of the child. It has been shown that the meninges are relatively impermeable to penicillin in ordinary dosages. Traces of penicillin do occur in the spinal fluid after intravenous injection but concentrations of 0.03-0.06 units per c.m. required to inhibit most strains of pneumococcus are not obtainable[9, 10]. The dosage required intrathecally should average 5000 units once or twice daily and need not exceed 20,000 units.

Twelve hours after the initial lumbar puncture a repeat puncture should be done in order to evaluate the results of therapy. If favourable there will be a reduction in the number of organisms seen and an increase in the number of cells present if originally low. If the response is not satisfactory specific serum therapy may be employed at this point. In either case another 5000 units of penicillin should be injected intrathecally and C.S.F. sent to laboratory for culture.

If a block is suspected as evidenced by slow running C.S.F. and lack of response to the Queckenstedt test it becomes necessary to seek another route of administration, namely, the cisternal or intra-ventricular and inject penicillin directly into these places. Lumbar puncture should be done daily for at least 5 days and 5000 units of penicillin injected intrathecally. Relapses are all too common[9] as evidenced by our own case where we discontinued intrathecal penicillin on the second day, because of a favorable response. On the sixth day the child had a clinical and bacteriological relapse.

Dangers from Intrathecal Penicillin

There has been considerable written in recent literature concerning the direct irritating effect of penicillin on the central nervous system[11]. The feeling at present is that intrathecal reactions are apparently due to high dosage rather than to concentrations of the drug and these reactions are related to the antibiotic properties of penicillin rather than to impurities. Normal patients show little or no reaction to dosages from 3000-5000 units at one injection and certainly its side affects should not detract from its therapeutic use in pneumococcal meningitis[12, 13]. However, certain precautions should be taken, namely, the penicillin should be suitable for intrathecal use; dosages over 20,000 units at one injection should not be employed and careful attention should be given to the technique of lumbar puncture to safeguard against the introduction of secondary infection during the procedures.

Treatment of Primary Focus

In pneumococcal meningitis the primary focus of infection should be sought. The commonest sites in children are the upper and lower respiratory tract; ears, sinuses and blood. These infections are usually well controlled by the systemic use of the sulfonamides and penicillin. However, in the case of acute otitis or sinusitis one should entertain the possibility of surgical drainage if the patient is not showing a favourable response to chemotherapy.

Finally general supportive measures must be employed to handle any accompanying condition. Intravenous plasma or blood may be required. Oxygen may be necessary if the pulmonary infection is severe. Attention should also be paid to the acid base balance of the blood and Molar

sixth lactate, glucose and saline employed when necessary.

Summary

A case of pneumococcal meningitis, with remission, is presented. This case was successfully treated by the combined use of sulfadiazene and penicillin systemically and penicillin intrathecally.

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TUBERCULOSIS

Edited by K. C. Johnston, M.D.

Tracheobronchial Tuberculosis

K. C. Johnston, M.D.

The direct visualization of the tracheobronchial tree has become, in the past decade, an outstanding factor in the management of pulmonary tuberculosis. Correct assessment of the bronchial involvement provides information which may be necessary in deciding for or against collapse therapy, what type of collapse should be used, and when it should be instituted. In many instances a complete knowledge of the pulmonary disease cannot be gained without the correlation of bronchoscopic findings with the physical signs and the changes in the chest film.

The pathologist at post mortem examination will discover over 90% bronchial or bronchiolar involvement in all cases of pulmonary tuberculosis. The bronchoscopist, whose field of observation reaches only to the orifices of the tertiary bronchi, will find bronchial disease in approximately 10% of cases admitted to sanatorium, and in 60-70% of those whose chest film or clinical signs suggest endobronchial tuberculosis.

Tracheobronchial tuberculosis is seen most commonly in middle-aged females but can occur in both sexes and at all ages. It is present in 10% of cases of primary tuberculosis, and in 95-100% of those whose X-ray films show widespread disease with gross cavitation.

Pathogenesis

The mode of infection may be by the lymphatics, the blood stream, direct contamination or direct extension from the parenchymal disease. It is probable that the spread along the lymphatics of the submucosa is the primary method of extension and the contamination by purulent material in the bronchus is of secondary importance.

Pathology

There are four stages in the pathology of endobronchial tuberculosis. At the onset, the submucosa shows increased vascularity with redness and swelling. The bronchial lumen is proportionately diminished. The second stage is characterized by ulceration. The mucosa over the affected area sloughs and leaves a granulating ulcer which is usually covered by white or grayish caseous material. Removal of this layer results in bleeding from the underlying granulations. Progression of disease is marked by increasing formation of tuberculous granulation tissue—the granuloma, or tuberculoma—which may completely block the lumen of the bronchus. When the activity subsides, the lesion undergoes fibrosis and the final picture is the well known, intractable bronchial stenosis.

The lesion may continue to spread upwards along the bronchial tree to involve the stem bronchi and finally the trachea. The left main bronchus is affected in approximately 50% of cases and the right upper lobe bronchus in approximately 30%. The changes which occur in the lung parenchyma during the various stages of endobronchial disease will be discussed later in the study of the X-ray film.

Signs and Symptoms

The physical findings are those of partial or complete bronchial obstruction. There may be both inspiratory and expiratory rhonchi—high pitched or low pitched depending on the size of the bronchus involved. If obstruction is complete, atelectasis of the corresponding lung segments will result in absent breath sounds and dullness. Partial obstruction will cause retention of air and subsequent patchy emphysema or tension cavities with some diminution in breath sounds, normal

or increased resonance, and bronchial breathing.

As a result of the irritation in the bronchus the cough is harsh and rasping, occurring in severe and seemingly interminable spasms which leave the patient weak and exhausted. In proportion to the cough the amount of sputum is small, but varies with the obstruction. For days or weeks the lumen of the bronchus may be so narrowed that secretions are blocked—the patient will experience malaise, a persistent fever, and frequently a sense of fulness or pain over that portion of the chest. Then the drainage will be re-established and—with the increased raising of sputum—the fever, pain, and malaise disappear. Blood-streaking or haemoptysis may occur. Rarely is there any large haemorrhage. The patient may notice streaked sputum for a few days and then may carry on for several weeks or months without any sign of blood.

*"The X-ray film may show the definite changes of bronchial obstruction similar to those seen in foreign bodies in the bronchi. If air is allowed to pass freely in both directions there will be no change in the radiologic picture. However, if the granulation tissue or the stenosis produces a check valve, air will pass into the lung with the increase in the size of the bronchial lumen on inspiration, but the outward current will be obstructed as the lumen contracts. The most frequent X-ray finding in such a case is the tension or giant cacity. The lung tissue is not necessarily destroyed, but merely compressed by the force of the air in the cavity. If a stem bronchus is involved in this way, a unilateral obstructive emphysema will be seen on the X-ray film.

Complete bronchial occlusion produces a stop-valve mechanism in which the air will pass neither into nor out of the corresponding lung segments. The air distal to the lesion is absorbed and the lung collapses. The X-ray films will then show an atelectatic area; it may be lobular or lobar, or if the main bronchus is occluded the entire lung will become opaque.

Partial or complete bronchial occlusion may result from extrabronchial compression by tuberculous lymph nodes, giving very much the same clinical and X-ray findings as those previously mentioned. This is especially true in children where the hilar nodes are involved. The compression occurs in one or all of three areas: the right and left tracheobronchial and the interbronchial. On bronchoscopic examination the tracheal and bronchial walls are irregular or stenosed but usually the integrity of the mucous membrane remains intact. Occasionally a tuberculosis hilar gland ruptures into one of the main bronchi giving signs of acute bronchial obstruction and severe haemoptysis. Broncholiths and granulation tissue may be coughed out over a period of several days and gradually the symptoms subside. The final result is a severe cicatricial bronchial stenosis.

Endobronchial involvement in pulmonary tuberculosis should be suspected in a patient with oral wheezing or spasms of coughing with comparatively small amounts of sputum. If rhonchi are heard on ausculation and tubercle bacilli are persistently present in the sputum in spite of apparent improvement, the clinical diagnosis of bronchial disease is justified and bronchoscopic examination is indicated. If the X-ray film shows the typical changes in the lung which follow bronchial obstruction or occlusion; i.e., atelectasis, obstructive emphysema, tension cavities, or a fluid level in a cavity, there is almost certainly a tuberculous bronchitis and bronchoscopy should be advised. Complete examination includes the correlation of the physical signs, the X-ray changes, and the bronchoscopic findings.

Contrary to earlier misconception, it has been shown within the last two decades that bronchoscopy is definitely indicated in many cases of pulmonary tuberculosis and with few exceptions may be performed as readily in the tuberculous patient as in the non-tuberculous. The larynx should be carefully examined to assure the operator that there will be no ill effects from the passage of the bronchoscope. If the vocal cords are affected or fresh granulations are seen in the posterior commissure the bronchoscopic examination should be deferred. A healed lesion in the larynx may be aggravated by bronchoscopy if the aperture is appreciably narrowed. Recent pulmonary haemorrhage or a fresh spread of infection are also definite contraindications. If due consideration is given to these points and to the general condition of the patient there will be no ill effects.

The bronchoscopic diagnosis is important for many reasons; e.g., to confirm the probability that tracheobronchial tuberculosis has developed, to rule out the possibility of bronchial compression or occlusion from other causes, to determine the extent and progress of the disease, and to assess the value of collapse measures which may be under consideration. The appearance of the trachea and bronchi will vary in different individuals or in the same individual, depending on the severity, the extent, and the stage of the disease. Where bronchial involvement is slight, there may be merely an increased redness of the mucosa with some swelling, giving it a velvety appearance. Purulent secretion may be seen coming from the orifice of the affected bronchus. In the more advanced cases the trachea and

*"Tracheobronchial Tuberculosis" — P. H. Hollinger and K. C. Johnston, (excerpt).

bronchi will show ulcers of various sizes with granulation and caseation, increasing the depth and area to involve the entire orifice of one or more of the stem bronchi. The process in the later stages can include the entire surface of the trachea. Where activity of the disease has subsided, there will be a residual stenosis of the bronchi which were affected. The lumen may be partially or completely occluded by scar tissue.

Prognosis

Parenchymal disease is usually influenced by the condition of the bronchi, and, similarly, the tracheobronchitis may vary directly with the activity in the lung. A moderate affection of the bronchi may resolve spontaneously as the general condition improves and the parenchymal lesion is controlled. On the other hand, the endobronchial disease may become progressively worse and the prognosis less favourable regardless of parenchymal improvement. The prognosis then depends directly on the activity of the bronchial lesion. Hence, the presence of tracheobronchitis in any case of pulmonary tuberculosis means the addition of a great and unpredictable hazard. It certainly contributes an appreciable difficulty in treatment. If the lesion in the trachea and bronchi continues active and progressive the sputum remains positive for tubercle bacilli. There is constant danger of spread of infection to other parts of the lung, and pulmonary changes consequent to bronchial occlusion will be seen on the X-ray film. Sudden changes in the size of cavities will be noted and atelectatic areas will be seen in the region drained by the corresponding bronchi. When the collapse occurs in the diseased portion of the lung the results can be beneficial since that effect is often exactly what the phthisiologist desires. In this way there may be an arrest of parenchymal disease and subsequent resolution of the tracheobronchitis.

The natural factors which influence the progression or retrogression of tracheobronchitis are not known. Improvement in the patient's general condition by rest and sanatorium care, and the arrest of the parenchymal disease appear to have a beneficial effect, but occasionally the lesion in the bronchi continues to spread in spite of general treatment or collapse therapy. Spontaneous resolution of an advanced bronchial lesion may occur in a few months for no apparent reason and, conversely, within a comparatively short time this may be followed by a severe recurrence. For these reasons, it is necessary to know the condition of the bronchi before the final diagnosis of arrested tuberculosis is made in a patient who has had extensive tracheobronchitis."

Treatment

In the acute stage of the disease treatment is directed first towards the general care of pulmonary tuberculosis. Rest in bed in sanatorium is necessary to improve the health of the patient.

Local treatment in the past has been the application of vasoconstrictors, or cauterizing solutions to the diseased area. The sulfa derivatives were tried and found to give no improvement. Some workers have reported good results with 30% silver nitrate. Others have felt that the residual stenosis, which is apparently inevitable, is increased after the use of chemical cautery.

Inhalation therapy with penicillin aerosol has been shown to be efficacious in reducing the secondary infection but it is not considered specific treatment. More recently, streptomycin gives promise of some success, using 1 gm. daily by inhalation and supplementing with 1 gm. daily parenterally, since there is no appreciable absorption from the tracheobronchial tree.

Complete stenosis of the bronchus may be temporarily relieved by the topical application of adrenaline but ultimately no useful purpose is served. Careful dilatation of the strictures by the passage of graduated bougies can be tried but not without some danger of re-activating the disease.

Summary

The importance of tracheobronchial tuberculosis lies in its effect on the parenchymal disease and in the prolongation of treatment. Correct management with collapse therapy depends on the knowledge of the state of the bronchial tree. Tracheobronchial tuberculosis is present in 10 to 15% of patients with pulmonary tuberculosis. It is more frequently found in women than in men, involving the left bronchus in over 50% of patients and the right upper lobe bronchus in 30%. It usually originates in a bronchus near a cavity as a hyperemia followed by mucosal edema, necrosis, and ulceration. Granulomas or tuberculomas may follow which fibrose as the acute process subsides. Healing takes place with dense scar tissue contractures producing partial or complete bronchial obstruction. The characteristic symptoms are the violent cough, asthmatic wheeze, and dyspnoea in severe cases; the clinical findings are those of bronchial obstruction and a persistently positive sputum. The diagnosis is established by bronchoscopic inspection. Direct treatment of the disease has not been satisfactory in most instances, but application of cauterizing solutions, sulfa derivatives, or antibiotics may result in improvement.

A Clinical Report on Benadryl

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Following enthusiastic reports of the use of Benadryl from the Mayo Clinic and private clinics in Winnipeg, a quantity was obtained for trial at Deer Lodge Hospital.

Pharmacology

Benadryl is the trade name of B-dimethyl-aminoethyl - Benzhydryl - ether - hydrochloride. It possesses both anti-histamine and antispasmodic activity, and is stated to be non habit forming and to have none of the side effects characteristic of parasympatholytic drugs, such as drying of secretions, disturbances of vision, and changes in heart rate.

The drug was developed in the Research Laboratories of Parke, Davis and Company by Loew, Kaiser and Moore in their study of the theory that most allergic diseases are provoked by the local release of histamine or a histamine-like substance. In pharmacological tests on animals it was found that benadryl alleviated the bronchial constriction caused by histamine or anaphylactic shock, the vasodepressor effect of histamine, and the spasm of smooth muscle. In tests compared with aminophylline on histamine shock, and with papaverine on smooth muscle it was found far superior. In comparison with papaverine it was 650 times more effective in antagonizing histamine, 50 times as effective antagonizing acetyl-choline and 1.3 times as effective in antagonizing the contractile effect of barium chloride. This suggests that benadryl has three components to its antispasmodic activity: (1) an anti-histamine action, (2) an antispasmodic action (anti-barium chloride effect), (3) an atropine like effect (anti-acetylcholine action).

Toxicity test on animals have been found to be low and on human beings there is a wide margin of safety between therapeutic and serious toxic effects. Lethal doses on animals were found to produce violent excitement, ataxia, convulsions and respiratory failure, before death occurred.

Dosage

Except in cases of acute urticaria, angioneurotic edema, it was administered in 50 mgm. doses t.i.d. for at least 4 days in all cases. If effective, dosage could be reduced without loss of effect.

Results

Table I shows a list of the conditions for which it has been given and on which we have reports. Reports were not kept on a large number of patients treated in the allergy clinic. However, a general summary of their findings is listed below.

Benadryl has not been used in a sufficient number of cases of dysmenorrhea, spastic colitis or Meniere's syndrome, for us to arrive at any definite conclusions as to its value in these conditions.

Unfortunately there is no proper scientific standard for estimating the effect of benadryl. The results here tabulated are almost entirely subjective findings, such as regaining power of smell or of taste, clearing of nose, relief of pruritis, and general improvement.

Table 1

Condition	No Patients	Excellent	Good	Fair to Poor	Not Improved
Allergic Rhinitis	5	2	1	1	1
Hay Fever	1	1	..	..	..
Urticaria	8	3	2	2	1
Angioneurotic edema	1	1	..	..	..
Contact dermatitis	2	..	1	..	1
Asthma—intrinsic	3	..	1	1	1
Asthma—extrinsic	7	..	3	2	2
Bronchitis with spasm (allergic bronchitis)	8	..	..	2	6
Asthma with emphysema	2	..	..	1	1
Migraine	1	..	1	..	..
Post Traumatic headache	3	..	..	2	1
Totals	41	7	9	11	14

The allergy clinic reports improvement in about 25% of cases, with a higher percentage of response in urticaria and hay fever. The effect of benadryl on bronchospasm is only mild, whereas in cases with nasal symptoms the nasal congestion is considerably improved. Benadryl has not been found to give relief in an asthmatic attack when used by itself, but one patient was able to prevent attacks that would ordinarily come on under certain conditions. It was found that the effect of the drug tends to wear off as its use is continued, but if temporaily discontinued and resumed following another acute attack of spasm, the original effect returns. It is about equally effective in intrinsic and extrinsic asthma. The clinic believes the drug is definitely worth a trial in all cases.

From a study of the tabulated results and from the general opinion of those administering the drug

at Deer Lodge, it is assumed about 35-50% of cases of allergic rhinitis, hay fever, urticaria (allergy to foods and drugs) and contact dermatitis are completely relieved of symptoms, and 25-35% of asthma patients who have no other chest infection are partially benefited by the use of benadryl. This is consistent with findings of other hospitals and later reports from the Mayo Clinic.

Most asthmatics took the drug in association with adrenalin or with an autogenous or exogenous vaccine or with a combination of these. Two patients with recent histories of asthmatic attacks reported gradual improvement on a combination of the three. In acute attacks they would take adrenalin 1/100 by nebulizer followed by a benadryl capsule, which combination they said gave them more relief than the adrenalin alone.

Only one patient suffering from chronic bronchitis with bronchospasm and allergic rhinitis reported any effect and he felt that his nose was clearer than before. Nearly all the patients of this group had negative allergy tests, or, if they were positive, had minimal reactions to the common allergens such as house dust, feathers and animal dander.

Of the two patients with post traumatic headache the one with only slight response had a marked psychogenic factor in his condition.

One patient came into hospital about 11 a.m. with acute swelling of the tongue which began after eating a perfectly normal breakfast for him. His tongue was so swollen that it was impossible for him to swallow a benadryl capsule (no elixir was available) and he was therefore given adrenalin hypodermically. By evening his tongue was greatly reduced in size and he was discharged next morning. Had he been given benadryl as well, the excellent result would no doubt have been partially credited to the new drug.

Toxic Symptoms

Transitory drowsiness has been the most common side effect encountered. When present it always occurred within the first 24 hours. With two patients the sleepiness was severe enough to warrant discontinuation of the drug. One stated he slept better at night. Others said it made them a little sleepy, but the drug was not discontinued because of this. Because of this effect the manufacturers advise that the drug be not used with barbiturates but the Mayo Clinic report that they have had satisfactory results combining the drug with caffeine or benzedrine during the day. Other occasional complaints are nausea, indigestion and skin rash.

Psychogenic Factor

It is believed that here as with any new drug, a psychogenic factor must be taken into account. This is particularly true in asthmatics in whom emotions are considered to play a large part, and who as a group are anxious and willing to try every new product on the market to get relief from their symptoms. The fact that the effect of benadryl tends to wear off on that group of patients who report initial satisfactory results may be due to such a factor or not, we are not certain.

Conclusions

1. Benadryl is of value in treating those conditions in which the local secretion of histamine or histamine like substances plays a part. This group includes acute urticaria, angioneurotic edema, hay fever, allergic rhinitis and asthma without other chest complications. It has been found to be completely or partially effective in 25-50% of cases.

2. Its advantages lie in the easy method of administration and almost complete lack of toxic symptoms.

3. It does not always give the prompt and often more satisfactory results that adrenalin or ephedrine gives in these cases.

4. Its administration does not bring about a cure and its effect tends to wear off after prolonged use.

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chemotherapy in otologic infections

1. **FIELD:** Effective in BOTH acute AND chronic otitis media.
2. **POTENTIATION:** Has enhanced antibacterial action.
3. **DIFFUSION:** Penetrates more completely into infected tissues.
4. **MICRO-DEBRIDEMENT:** By chemical action on necrotic tissues.
5. **ANALGESIA:** Without impaired sulfonamide activity.
6. **pH:** Approximately neutral in reaction—non-irritating and physiologic.
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White's Otomide

Hospital Clinical Reports

Deer Lodge Hospital

Reported by Dr. D. B. Stewart

Ulcerative Colitis

Through the courtesy of Sharpe and Dohme Ltd. a film was shown on the use of Sulfathaladine in the treatment of ulcerative colitis. This is a sulfa compound (Phthalylsulphathiazole) of relatively low toxicity. Dr. Kilgour, in discussion, pointed out that sulfathaladine has the advantage over its predecessors of less absorption from the bowel, thus permitting a smaller effective dosage and more prolonged administration without toxic effects. Ulcerative colitis remains an unsatisfactory and enigmatic disease, and in Dr. Kilgour's experience some cases respond poorly to chemotherapy despite almost complete suppression of B. coli. Bargen's diplococcus is probably more important in the etiology of the disease and it is relatively sulpha-resistant. Dr. Corrigan stated that in this disease surgery is usually aimed at symptomatic relief. A great surgical hazard in these cases in hypoproteinemia. There may be as much loss of plasma proteins from the ulcerated bowel as from an extensive burn. Surgery is better done before this process has gone too far. Even after such procedures as ileostomy protein loss and hemorrhage may continue from the lower part of the bowel. Total colectomy must sometimes be considered as a last resort after enterostomy, when ulcers fail to heal and hemorrhage continues.

Chronic Cough

A Symposium With Case Histories

Dr. Adamson, as introduction, stressed the importance of chronic cough as a time-waster and a pension problem. In a group of pensioners for "chronic bronchitis" reviewed by Adamson and Beamish the cough was found to be attributable to upper respiratory infections in 35%, to allergy in 26%, to emphysema in 27%, and very few had a true chronic bronchitis. At Deer Lodge Hospital during the past year all chronic coughers have been thoroughly investigated in an attempt to trace the real cause. The whole respiratory tract should be considered as a unit and investigated as such. Dr. P. C. Lund discussed the physiology of cough. Obnoxious material in the bronchial tree is expelled by three mechanisms; ciliary action, bronchial peristaltic movements; and the cough reflex. All these can be depressed by certain drugs and anaesthetic agents. Dr. Adamson remarked that coughing is not a disease, it is a physiological response. It is not a pathological entity to be subdued at all costs.

The first case history was presented by Dr. Portigal. A man of 28 had had whooping cough in childhood with no apparent sequelae, but otherwise was quite healthy until 1941. Following his enlistment in 1941 he had frequent colds, and in 1942 and 1944 severe respiratory infections for which he was admitted to hospital. During the 1944 episode he produced some blood-streaked sputum. Following this he had a morning productive cough, and episodes of increased cough with tightness of the chest and wheezing. His army category was lowered because of "chronic bronchitis." Following his discharge in 1945 he went to work and has lost only two days of work in a year, but has had persistent morning cough and expectoration with several minor exacerbations. He smokes cigarettes. This history suggests four main possibilities. He may have bronchiectasis, either congenital or resulting from whooping cough; he may have a chronic upper respiratory tract infection, suggested by the history of post-nasal discharge; he may have suddenly developed an allergic state in 1944; or he may have pulmonary tuberculosis.

Examination showed a normal thoracic index, ruling out emphysema. Rhonchi were present over both lungs at times but not consistently. This suggests bronchiolar spasm from some cause. Blood counts, sedimentation rate, sputum and nasal smears were all negative. Dr. McCullough showed the chest X-rays (including a bronchogram). These and films of the nasal accessory sinuses were normal. Dr. Adamson remarked that negative X-ray findings do not rule out all lung pathology. They do pretty well exclude pulmonary tuberculosis, in which only about one active case in a thousand has endobronchial ulceration which does not show by X-ray.

Upper respiratory infection is a common cause of chronic cough. Dr. Pierce discussed this aspect of the investigation. Conditions which must be looked for are: (1) chronic infections, rhinitis, sinusitis, tonsillitis, adenoid infection, pharyngitis, laryngitis; (2) nasal obstruction leading to mouth-breathing (deviated septum, spurs, polypi); (3) long uvula, hypertrophy of the lingual tonsil, or tumors of the nasopharynx of pharynx. When chronic rhinitis is found it can be differentiated as (a) simple chronic rhinitis in which the mucosa is congested but shrinks down well; (b) vasomotor or allergic rhinitis, in which the mucosa has a peculiar boggy blue-grey appearance and there may be eosinophilia in blood and nasal smears; (c) hyperplastic rhinitis, where the mucosa is thickened, usually over the inferior and middle

turbinates, does not shrink well, and causes some degree of obstruction; and (d) atrophic rhinitis, with crusting and associated obstruction. Chronic rhinitis, sinusitis or pharyngitis are almost always due either to repeated acute attacks, to irritants such as smoke, dust, dryness or extremes of temperature, or to factors interfering with proper ventilation and drainage of nose and sinuses. Treatment is aimed at correcting the causative factor. Smoking is a common irritant, and many cases are cured by cutting out smoking.

On first examination of this patient there was little to find except a rhinitis suggestive but not typical of the allergic type. However, when he was seen again three weeks later he had developed a left maxillary sinusitis. This seemed to be a superimposed complication but it shows the need for periodic re-check of patients under investigation.

Dr. McEwan discussed allergy as a cause of chronic cough. Criteria to be looked for in the diagnosis of allergy are: (1) Can the symptoms be explained on a basis of smooth muscle spasm, or edema due to increased capillary permeability? (2) Are the attacks of sudden onset or seasonal? (3) Is there a personal or family history of allergy? (4) Eosinophilia in blood or nasal smear or antral washings. (5) Response to anti-spasmodic drugs. (6) Positive skin tests. In this case no definite positive skin tests were found and the history is not characteristic of allergy, although the expiratory rhonchi are suggestive of bronchospasm. Findings on bronchoscopy were normal, with no sign of the sticky mucus often found in allergic cases, nor of mucosal edema or bronchospasm as in some asthmatics.

Dr. Downey summed up the case as one giving a not unusual history. The only concrete findings were rhonchi which were probably due to a minor increase of pulmonary secretion, and later an infection in the antrum. The man's present disability is negligible. His prognosis is good though he may eventually have some real disability. This may be averted by treating every acute respiratory infection early and adequately. While in hospital he was given penicillin intramuscularly and by inhalation (aerosol), expectorants, and the chronic focus in the antrum was treated. Dr. Adamson re-emphasized that such cases may go on to gross sepsis or emphysema unless preventive measures are taken. Often on investigation **no** cause for cough can be found and often cigarette-smoking is under suspicion. Many chronic coughers stop coughing when they stop smoking.

The second case of chronic cough was presented by Dr. J. R. Mitchell. A man aged 22 gave a history of cough for ten years, worse for six months and with increasing expectoration; also for six months he had had continuous frontal headache and profuse post-nasal discharge. He had whooping cough in childhood. He has had pneumonia four times, first at the age of ten, the last two times in 1944 and 1945. He is said to have had pleurisy twice since 1943, though the chest was never aspirated. Examination showed fairly profuse post-nasal discharge. Scattered rhonchi were over both sides of the chest. Plain film of the chest was negative; films of the sinuses showed the right frontal absent and all the others cloudy. A lipiodol bronchogram showed bronchiectasis of both lower lobes. On bronchoscopy the mucosa of both lower lobe bronchi was found to be granular and considerable pus was aspirated from both sides.

Dr. Adamson remarked that the sinus infection here is certainly partly at least a factor in the development of his bronchiectasis. Whether the bronchiectasis is of purely infective origin or congenital with superimposed infection is impossible to say.

Dr. Pierce discussed the E.N.T. investigation. When this patient was first seen in December, 1945, a diagnosis of chronic pansinusitis was made and he was treated with Proetz displacements and penicillin. When reviewed in September, 1946, (after lobectomy) there was definite improvement and only the antra showed marked pathology. As conservative treatment had not been successful and it was thought naso-antral windows would not give sufficient drainage, a bilateral Caldwell-Luc operation was done and a good result obtained. This case illustrates the consequences of improper care of upper respiratory infections in childhood. Dr. Adamson argued that in some cases at least one can be fairly sure that the lower respiratory tract sepsis originated first, often as a result of whooping cough.

Dr. Schoemperlen said that in this case the white blood count and sedimentation rate were somewhat elevated, so medical treatment was first indicated. Drainage was aided by expectorants (Pot. iodide, CO_2, steam inhalations), posturization, breathing exercises and bronchoscopic aspiration. He was given sulfadiazine, also penicillin intramuscularly, by aerosol and by intratracheal instillation. On this regime and with treatment of his sinus infection he improved greatly. Dr. Adamson commented that such treatment may be sufficient in many cases of minimal bronchiectasis, and with care they get along all right. However here the past history showed considerable morbidity and repeated flare-ups, and surgical treatment was thought wise.

Dr. Rumball spoke briefly on pre-anaesthetic precautions. All possible means of reducing

secretion in the bronchi are adopted, including preliminary bronchoscopy. The commonest post-operative complications are atalectasis and the complications which may result therefrom. Dr. Perrin remarked that the chest surgeon has the benefit of many skilled opinions in planning his treatment of these cases. In this man's case medical treatment would at best afford the prospect of a life-time dependance upon doctors. Where bronchiectasis is localized to one or two lobes surgery offers a cure. A left lower lobectomy was done on this patient and although complicated by a small encapsulated empyema his recovery has been good. Dr. Williams reported that the lobe showed bronchiectasis which appeared to be infective in origin rather than congenital. The patient is carrying on at home with little trouble though he still has some cough and sputum from his right side. He is to return for a right lower lobectomy later, though before this is finally decided upon the complete investigation will be repeated.

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Winnipeg General Hospital

A Case of Spontaneous Haemothorax

Dr. Schoemperlen

A young man, aged 28, gave a past history of several attacks of bronchitis and X-ray plate in 1944 showed evidence of pleural adhesions in the left base. Three days before admission to hospital he had sudden severe pain in his left chest. He was admitted with pleural effusion, which on aspiration was almost pure blood. There was no history of trauma or strain at the time of the onset.

Haemothorax is most commonly associated with one of the following conditions: (1) Pulmonary infarction. (2) Pulmonary or pleural neoplasm. (3) Pulmonary tuberculosis. (4) Trauma.

Only 44 cases of spontaneous haemothorax have been noted in the literature to date. Of these, 40 were associated with spontaneous pneumothorax. Of the 4 remaining cases, only one occurred in a female. This lesion is the commonest on the left side and mortality is approximately 30%.

Those cases associated with pneumothorax are considered to be due to rupture of an emphysematous bulla and adhesions; while haemothorax occurring in the absence of pneumothorax is thought to be due to rupture of a pleural adhesion with bleeding from the parietes.

Dr. Schoemperlen emphasized the importance of diagnostic thoracentesis in cases of this nature.

Dr. J. D. Adamson: I have never seen spontaneous haemothorax, except in association with spontaneous pneumothorax. In this case the site of the fluid collection from the chest suggests previous pleural adhesions; this is borne out by previous history and X-rays, and the bleeding was no doubt due to torn adhesions. The relative lymphocytosis noted in the fluid aspirated in these cases is not significant; it is a result of early haemolysis of polymorphonuclear white blood cells.

Dr. H. V. Rice: What should be done in the way of treatment in these cases?

Dr. Schoemperlen: The prognosis in these cases is better than in those of idiopathic effusion. Treatment consists of (1) repeated aspirations and (2) breathing exercises begun after bleeding has stopped.

Obituaries

Dr. Thomas MacKetchie Milroy

Dr. Thomas MacKetchie Milroy, who practised in Winnipeg for fifty years, died at Vancouver, B.C., on January 31. Born in Galt, Ont., he graduated in medicine from Trinity University, Medical Faculty, October 3, 1882, and was licensed in 1885. For some years he was a leading practitioner in Portage la Prairie, then moved to Winnipeg. He was on the staff of Manitoba Medical College and for many years he served with the late Dr. H. H. Chown as medical examiner for the Great West Life Assurance Company. He took an active interest in the Canadian National Institute for the Blind. He was Consultant Emeritus on the honorary attending staff of the Winnipeg General Hospital.

Dr. Charles James Bermack

Dr. Charles James Bermack died suddenly in his office in Winnipeg. on February 11, aged 51.

Born in Detroit, Michigan, he lived most of his life in Winnipeg and was educated in the public schools and St. John's Technical High School. He graduated in medicine from the University of Manitoba in 1916 and began practice in 1919 in Winnipeg. With Dr. S. Easton he formed the Bermack-Easton Clinic.

He was a past president of the Jewish Orphanage, first Chairman of the Children's Bureau and a past master of Mount Sinai Masonic Lodge. Sport was another of his interests. He was a physician to the Winnipeg Rugby Club and for some years a member of the Winnipeg Senior Bowling league. Besides his widow, he is survived by a son, Gordon, a medical student in the University of Manitoba.

Clinico-Pathological Conference

Deer Lodge Hospital

Precis of Case History

This 25-year-old ex-plumber was admitted to hospital in October, 1944, with a history dating back to February or March, 1944. History and progress were as follows:

February-March, 1944—Exposed to air-bombing in England where he had served in the army for three years. He denied previous ill health. About this time he complained of regurgitation of bitter tasting fluid, epigastric discomfort and vomiting. He was investigated at a C.G.H. with negative findings. The only laboratory investigation recorded was a negative barium series. He was repatriated to Canada on psychoneurotic grounds where following another negative barium series he was discharged in May, 1944, on psychoneurotic grounds. At this time his complaints were, if anything, more severe and he also had headaches. His discharge board noted that he "looked poorly nourished" and he stated he was "too sick and tired to work."

October 7, 1944—While unloading a truck he felt a sudden snap in his lumbo-sacral region, which was relieved at home by a hot water bottle but which became worse on assuming the upright position. As a result, on the 15th October, 1944, he was admitted to Surgery as "lumbo-sacral strain." His temperature on admission was 100° F, and there was "spasm of his back muscles." X-ray of the spine was negative and local anaesthetic infiltration produced relief of the pain.

October 28, 1944—Slight nose bleed.

October 29, 1944—Nose continued to bleed and that evening he vomited a pint of blood and went into shock. Petechiae were noted in the cubital fossae. Prior to transfusion haematological exam showed Hgb. 54%; RBC 2.77 mill; WBC 12,000; Stab 29%; myelocytes 27% and monocytes 3%. Platelets were 130,000; clotting time 4 min.; bleeding time 1 min. His temperature rose to 103° F. and there was generalized abdominal pain and some abdominal rigidity. His back was painful and tender. Peripheral lymph nodes were not enlarged, nor were liver or spleen palpable; no masses in abdomen. Obviously dangerously ill.

October 30, 1944—Flat plate of abdomen—negative; no free air. Lower dorsal and lumbar spines radiographically negative. In spite of transfusions, Hgb. 54%; WBC 11,000 with same differential except that it was noted that in this and previous smear 3% of "white cells" were in reality nucleated red cells.

October 31, 1944—Nasal bleeding uncontrolled. Hgb. 36%; RBC 1.8 mill; platelets 18,000 and 5% nucleated red cells present among "white cells." In spite of nasal packing he continued to bleed, passed tarry stools and died in coma on November 4, 1944.

Summary of Diagnostic Discussion

A. B. Houston, B.Sc., M.D., F.R.C.P. (C).

We have here a 25-year-old man who died within one year of first symptoms of ill health and about whom we have the following information on which to base a differential diagnosis:

(1) Vague dyspepsia. (2) "Poorly nourished" ? weight loss and/or pallor (? Anemia) or both. (3) Sudden low back pain. (4) Epistaxis. (5) Haematemesis. (6) Anemia as described.

Of these only the last three lend themselves readily to etiological classification and consideration of any of these except the last leads to a number of possibilities which cannot be further narrowed down. The blood picture, however, reflects a profound disturbance of health and is readily subject to detailed etiological classification and for these reasons may be taken as the jumping off point for discussion. Before embarking on such discussion, however, we must consider the effects of the preceding haemorrhage on the blood picture. This haemorrhage was obviously a severe one from point of view of blood volume loss since it was followed by shock. The examination of the blood was done immediately following the haemorrhage so that there was no time for the normal haemodilution after haemorrhage (in presence of previously normal blood volume and tissue hydration) to show its effects. Thus we may assume an anemia of 60% or below existed before the acute blood loss. Further, although haemorrhage is usually followed by a polymorphonuclear leucocytosis this is not characterized by the high number of myelocytes present here; similarly although nucleated red cells may follow haemorrhage, they do not appear so quickly nor in such high number. Also, haemorrhage is generally followed by an increased platelet count, not by a decreased count as reported here. The haemorrhage then will not account, even in significant part, for the blood picture; prolonged haemorrhage or hemolysis might account for part of these changes but we have no evidence of such haemorrhage or hemolysis. We have then a blood picture showing immature white cells (leucoblastic), immature red cells (erythroblastic) and decreased platelets, classified by Janet Vaughan as a leuco-erythroblastic anemia. Without entering into a discussion of the mechanism of production of such changes we may broadly say that such a picture results from replacement-stimulation of the bone marrow by invasion with

abnormal cellular constituents and can be broadly classified, etiologically as follows:

(A) Carcinomatosis—C with bone marrow metastases, by far the commonest cause.

(B) Other bone marrow replacement—by such processes as the leucemias, the lymphosarcomas and granulomas (including Hodgkin's), multiple myeloma, Gaucher's disease, myelosclerosis, marble bone disease all of which are only uncommonly the cause of such a blood picture.

Considering group B first:

(1) We may rule out leucemia by the absence of "blast" cells even terminally; by the absence of a total leukemoid picture or of any glandular or splenic enlargement, and by absence of any symptoms or signs of mouth or throat infection.

(2) Similarly, the lymphoblastomata group can likely be excluded by absence of any glandular enlargement and Gaucher's disease by lack of splenomegaly.

(3) The shortness of the history and absence of splenomegaly rule out myelosclerosis and similar processes.

(4) The negative X-ray and (presumably) negative urinalysis excludes multiple myeloma.

This leaves us with a diagnosis of carcinomatosis without clear evidence as to where the primary might be. The common primary tumors which involve the bones secondarily are carcinomas of lung, breast, kidney, thyroid gland and prostate but there is no definite evidence on which to localize or exclude such a primary. Carcinoma of the stomach might be suggested by the haematemesis but such a primary in a man under 30 is very rare (only 90 cases reported up to 1939) and the other primaries listed are of similar infrequency. We must now attempt to explain the other symptoms on a basis of a diagnosis of carcinomatosis.

(1) Haematemesis and Epistaxis are bleeding phenomena which may be associated with any severe anemia, especially with a low platelet count, and of course there may or may not have been other disturbances in the factors concerned in blood clotting; but information about these is lacking.

(2) Sudden low back pain—due to carcinomatous metastases in lumbar vertebrae (quite possible even presence of a negative X-ray).

(3) The terminal abdominal pain and rigidity suggests peritoneal involvement, due possibly to

(a) Carcinoma of peritoneum—onset is too sudden for this to be likely.

(b) Intraperitoneal Haemorrhage — no physical signs recorded to suggest fluid (blood) accumulating in peritoneal cavity.

(c) Peritonitis, was apparently suggested, but was not due to perforation of hollow viscus as the negative X-ray showed—but note the elevated temperature at this time.

I cannot offer a good explanation of this finding.

(4) Dyspepsia — without further details, is a non-specific symptom of many varieties of ill health, but its early prominence in the picture makes one inclined to place the primary neoplasm somewhere in the upper gastro-intestinal tract or its appendages, but there is insufficient information to make such localization.

(5) The normal bleeding and clotting times do not lend weight for or against the diagnosis and generally are of very limited value in differential diagnosis.

Final Opinion

Carcinomatosis with bone marrow metastases, primary unknown, producing a leucoerythroblastic anemia of severe degree with terminal gastro-intestinal haemorrhage (source unknown) and peritoneal involvement (source and type unknown) and death.

Autopsy—Significant Findings

(1) Both lungs heavy, congested, oedematous, with 500 c.c. clear fluid in each pleural space.

(2) Free pus (streptococcus hemolyticus) in peritoneal cavity. Semi-fluid dark blood in lumen of gastro-intestinal tract.

(3) Head of pancreas and associated pre-aortic lymph glands enlarged and hard—glands form a mass 12 x 10 x 8 cms. Microscopic shows an adenocarcinoma of head of pancreas involving the lymph glands.

(4) Liver shows one microscopic area of adenocarcinoma.

(5) Bodies of the 4th and 5th lumbar vertebrae are softened with tumor which on microscopic fills the marrow but does not apparently involve cortical bone.

The autopsy otherwise showed nothing of note.

Erythroblastemia

Discussion by Dr. P. T. Green

The diagnosis was approached from the finding of erythroblastemia (the appearance of nucleated red cells in the peripheral blood). This is not a common finding, but it is a significant one.

Erythroblastemia is the rule in the newborn, and persists for up to two weeks after birth. However, in infancy and early childhood it is not uncommon to find nucleated red cells in the blood in response to a number of bone marrow stimuli. such as infection, hemorrhage, trauma, or poisons. Erythroblastemia may be marked in this age group, in the presence of Cooley's anemia, or erythroblastosis fetalis.

In adults it is very rare to find an erythroblastemia in response to usual marrow stimuli. Janet

Vaughan has called the anemias associated with nucleated red cells and immature white cells "leucoerythroblastic anemias"[1]. They are also classified under the "leucemoid reactions"[2]. Classification rests on uncertain ground, but is subdivided into:

(1) Those associated with marked marrow hyperplasia—Cases are reported in which erythroblastemia has occurred in septicemias; following repeated severe hemorrhages; hemolytic crises; crises in pernicious anemia; polycythemia vera. In these conditions there is generally an associated leucocytosis, and increased platelets as well.

In aplastic anemias a somewhat similar picture may be seen. In these cases while most of the marrow may be aplastic, islets of hyperplastic marrow are found.

(2) Extramedullary Hematopoeisis — In this group, blood formation is occurring outside of the bone marrow. It includes such conditions as myelofibrosis, myelosclerosis, Albert Schonberg's disease[3]. Immature white cells are present; the disease is slowly progressive; thrombocytopenia with bleeding tendencies occurs late, and there is splenomegaly.

(3) Bone Marrow "Irritation"—Under this heading is included diseases in which the marrow is partially replaced with cells which are not generally found in the marrow, or in large numbers in the marrow. The leucemias generally do not give rise to this picture, except in chronic myelogenous leucemia, where the diagnosis is obvious. However, cases are reported in which erythroblastemia was a feature in acute leucemias[4]. As a rule the clinical findings and the appearance of blast forms differentiates this group from other members.

In Gaucher's disease a mild erythroblastemia may occur, and also in multiple myeloma, lymphosarcoma with bone marrow metastases; and the granulomas involving the bone marrow, including miliary tuberculosis, and Hodgkin's disease. However, the commonest cause is carcinomatosis. Carcinomatosis with bone marrow metastases in younger people particularly is likely to give rise to this blood picture. Indeed as a working rule it may be said that marked erythroblastemia in an adult in the absence of splenomegaly is strongly suggestive of carcinomatosis.

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References

1. Vaughan, J. Path. and Bact., 42: 541.
2. Hill. Am. J. Med. Sc., 201: 847.
3. Rosenthal and Erf. Arch. Int. Med., June, 1943, P. 793.
4. Metlier. Arch. Int. Med., 60: 498.

Medico-Historical

Darius's confidence increased the more, because Alexander spent so much time in Cilicia, which he imputed to his cowardice. But it was sickness that detained him there, which some say he contracted from his fatigues, others from bathing in the River Cydnus, whose waters were exceedingly cold. However, it happened, none of his physicians would venture to give him any remedies, they thought his case so desperate, and were so afraid of the suspicions and ill-will of the Macedonians if they should fail in the cure; till Philip, the Acarnanian, seeing how critical his case was, but relying on his own well-known friendship for him, resolved to try the last efforts of his art, and rather hazard his own credit and life than suffer him to perish for want of physic, which he confidently administered to him, encouraging him to take it boldly, if he desired a speedy recovery, in order to prosecute the war. At this very time, Parmenio wrote to Alexander from the camp, bidding him have a care of Philip, as one who was bribed by Darius to kill him, with great sums of money, and a promise of his daughter in marriage. When he had perused the letter, he put it under his pillow, without showing it so much as to any of his most intimate friends, and when Philip came in with the potion, he took it with great cheerfulness and assurance, giving him meantime the letter to read. This was a spectacle well worth being present at, to see Alexander take the draught and Philip read the letter at the same time, and then turn and look upon one another, but with different sentiments; for Alexander's looks were cheerful and open, to show his kindness to and confidence in his physician, while the other was full of surprise and alarm at the accusation, appealing to the gods to witness his innocence, sometimes lifting up his hands to heaven, and then throwing himself down by the bedside, and beseeching Alexander to lay aside all fear, and follow his directions without apprehension. For the medicine at first worked so strongly as to drive, so to say, the vital forces into the interior; he lost his speech, and falling into a swoon, had scarce any sense or pulse left. However, in no long time, by Philip's means, his health and strength returned, and he showed himself in public to the Macedonians, who were in continual fear and dejection until they saw him abroad again.

When he came to Ecbatana in Media, and had despatched his most urgent affairs, he began to divert himself again with spectacles and public entertainments, to carry on which he had a supply of three thousand actors and artists, newly arrived out of Greece. But they were soon interrupted by Hephaestion's falling sick of a fever, in which, being a young man and a soldier, too, he could not confine himself to so exact a diet as was necessary; for whilst his physician, Glaucus, was gone to the theatre, he ate a fowl for his dinner, and drank a large draught of wine, upon which he became very ill, and shortly after died. At this misfortune, Alexander was so beyond all reason transported that, to express his sorrow, he immediately ordered the manes and tails of all his horses and mules to be cut, and threw down the battlements of the neighbouring cities. The poor physician he crucified, and forbade playing on the flute or any other musical instrument in the camp a great while, till directions came from the oracle of Ammon, and enjoined him to honour Hephaestion, and sacrifice to him as to a hero. Then seeking to alleviate his grief in war, he set out, as it were, to a hunt and chase of men, for he fell upon the Cossaeans, and put the whole nation to the sword. This was called a sacrifice to Hephaestion's ghost.

Plutarch—"Life of Alexander."

Book Review

The Analysis and Interpretation of Symptoms

Accurate diagnosis depends upon skill in the analysis and interpretation of symptoms which, in turn, depends upon an understanding of the mechanisms of symptom production. Some symptoms are common to many conditions and because they occur so frequently have been made the subjects of many writers. To gather all the pertinent articles in any instance is a task of no little magnitude and we are glad when we find ourselves spared the labour of much search and reading.

In the book under review there are discussed at length ten common symptoms. These are Nervousness and Fatigue, Fever, Headache, Thoracic Pain, Cough and Hemoptysis, Abdominal Pain, Haematemesis and Melena, Jaundice, Joint Pain, Obesity. Each separate article is followed by a bibliography and many are illustrated with photographs or diagrams. Stress is laid upon the pathological physiology. The various laboratory procedures are given and differential diagnosis is discussed fully. The book is edited by Cyril M. McBride.

The Analysis and Interpretation of Symptoms Edited by Cyril M. McBride, M.D., The American Practitioner series, 302 pages. J. B. Lippincott Company, Montreal, $5.00.

Editorial

J. C. Hossack, M.D., C.M. (Man.), Editor

Trends in Practice and the Family Doctor

Elsewhere in this issue you will find an advertisement headed "Training for General Practice," a caption which from its uniqueness is certain to attract attention. Some months ago an article appeared in the Canadian Doctor entitled "What's Wrong With General Practice?" With these as texts I shall now proceed to deliver myself of a brevis sermo on general practice and practice in general.

There are, as I see it, four trends in practice. Two of these are lay and two are professional. The first of the lay trends is towards a therapeutic Utopia where everyone will have freely at his disposal all the marvels of modern medicine. There is nothing wrong about that. Sickness is an expensive business and often the cost of investigation leaves little money for the payment of cure, or cure is made impossible because lack of means has postponed attention. We are as interested as our patients in bringing about the time when sickness will no longer be for many an economic disaster.

The second lay trend is away from the family doctor. The public, fed by press, radio and picture have come to glorify the specialist. They have eaten of the tree of the Pseudo-Knowledge of medical Good and Evil. They decide for themselves which organ is at fault and none but a specialist in that organ will satisfy them as an attendant. The concentrated knowledge of the specialist makes him in their eyes good. The equally great but more widely spread knowledge of the general practitioner makes him, for their immediate purpose, evil. No doctor, they are aware, can be medically omniscient therefore the general practitioner is, for all but minor ailments, medically nescient.

Thus when a woman finds herself pregnant she hies herself to an obstetrician. Her child is fed according to rules laid down by a pediatrician. He is circumcised by a surgeon, has his tonsils removed by a pharyngologist, his spots treated by a dermatologist, his hives by an allergist, his wheezes by a pulmonologist and he gets glasses from an ophthalmologist. Meanwhile the mother has been scraped, suspended and repaired by a gynecologist and for her palpitations has consulted a cardiologist while the husband most likely belches and bellyaches in the office of a gastroenterologist. The only time that the "family physician" is called is at three o'clock in the morning, when the family can't agree on which specialist is indicated and in any case fear, quite properly, that even if they hit on the right one, he probably wouldn't come as specialists are notoriously sensitive to the night air.

It is quite true that no one can today master all the details of all branches of medical knowledge. But it is equally true that every family doctor today knows more about all branches than was known by all the specialists who flourished a century ago. The patient of today is safer by far in the hands of a general practitioner than was his father, certainly than was his grandfather, in the hands of even titled specialists. Unfortunately people emphasise the limitations rather than the extent of their doctors scope. It is not in the best interests of either specialist or general practitioner that we should adjust our practice to suit the whims or ideas of the layman.

The professional trends are as old as the Alexandrians, perhaps older. The great men of Alexandrian medicine were Herophilus and Erasistratus. Herophilus, trained in the school of Hippocrates, regarded the patient himself as the proper object of study. Erasistratus of Cnidus followed the teaching of that school and regarded disease as a local process. In modern parlance Herophilus practiced holism while Erasistratus was an organologist.

We still find the profession divided into those who stress the importance of the patient as a whole and those who stress the importance of the organs. Because of the fact that knowledge has so increased we must have organologists and because the patient is still the chief object of study we must have holists. But these are diverse trends. How then can these two goods be combined into one best?

An organologist can function effectively in only two ways—as an independent consultant or as a member of a group. No one will question the advantages of group practice, it is so convenient to have all specialists under one roof. The extent of the knowledge of each specialist in his own field compensates for the fact that it must be correspondingly little in every other field and of the territory (the patient) as a whole. Patients think in terms of organs and so perforce must those whose intricate researches have led them from the study of a system to the study of an organ or even of a part of an organ. But while the practice of organology by individuals or groups has its advantages so also has it disadvantages.

Not the least of these disadvantages is the impersonal relationship of doctor and patient. They meet as strangers and must still be largely strangers when they part. On the one hand is awe, on the other scientific curiosity but free intimacy is almost impossible. Here getting well

and making well is a business where people think in terms of the concrete and the layman believes that he can buy health as if it were a merchandise or sees in some gadget a magic wand that will charm away his disease.

To a large part diagnosis and treatment have become mechanical but the patient is never mechanical. He is a person "servile to all the skiey influences that do this habitation that he keeps, grossly afflict." Treatment is still an art when the patient as well as his disease is an object of study. The aphorism "It is as important to know what kind of patient has the disease as to know what kind of disease has the patient," has been attributed to many and might, indeed, have been first uttered by Hippocrates for he said the same thing in other words. It was his rule.

For tens of centuries we have held Hippocrates before us as our model and ideal. Hippocrates was a general practitioner. To be sure knowledge then was much less than it is now but Egypt at the time swarmed with specialists.

To Hippocrates the whole was greater than the part, even greater than the sum of the parts for, in order to make the whole there must be added to the sum of the parts that intangible but essential complement which makes the person. It is in his power to supply this necessary addendum that lies the unique value of the family doctor. It is difficult if not impossible, however, hard one strives, to be Hippocratic while practicing a specialty. It is much easier for the general practitioner, but of all practitioners it is the country doctor who can come closest to the master for he alone lives and moves among his patients in perfect intimacy. He knows them, not as numbers or cases but by their first names. He knows every skeleton that rattles in their closets. He knows what lurks in the recesses of their hearts; their hopes and fears, their loves and hates, their triumphs and disasters. There is a place for him at every table. Between doctor and patient there exists a familiarity that is without contempt on the one hand or condescension on the other. He knows them at work and at play, on their birthbed and on their sickbed. And when death is approaching he comforts and relieves, as only a friend can do, the living and the dying. He is their doctor, which is good, but he is also their guide, philosopher and friend which is ever so much better, so greatly does it enhance his value. In the Arch of medicine the family doctor always has been, and always must be, the keystone. The specialists, like the remainder of the arch, give him support but without him they could not bring symmetry and strength to the task which is the task of all.

More than half of the doctors in the United States are specialists. Not a few of these are self-created having found in specialism a refuge for mediocrity where the light task of learning a little more about a little has been rewarded by ease and affluence. The weakness of patients and sweetness of life and nature of hope lead people to choose where they cannot judge and doctors find today what Bacon stressed three centuries ago, "They find that mediocrity and excellency in their art maketh no difference in profit or reputation towards their future." And so they turn to where the golden flood flows deeper, to where the sick are willing to accept them, and spurn the long hours, the hard work, the obscurity, the indignity (in the public eye) of general practice.

Organology is good and holism is good. How can these two goods be fused into one best? Surely by recognising in the family doctor the practitioner of holism, the co-ordinator and director of the combined operation against the patient's sickness, a collaborator whose greater knowledge of the whole is as necessary for treatment as is the specialist's greater knowledge of the part. It will be fatal to the progress of medicine if specialists and general practitioners are to compete for the same patient. Let each train himself to excel in his own realm.

Training for specialism is orderly and definite. Not so is training for general practice of the sort I have described. Such training must include more than instruction in obstetrics and pediatrics important though these be. It must include, also instruction on the whys and wherefores of human behavior. It must deal with personalities and constitutions and must lead its practitoners to understand what they observe. If general practice is to survive it must be in a status akin to a specialty and recognized as such especially by the people.

There are, as I see it, four trends in practice. The lay trend towards complete and inexpensive health care is good. The trend away from the family doctor is bad. The professional trend towards specialism is good so long as the organologists realise that their service is most valuable when their findings are correlated by the family doctor who knows his patient.

The trend towards holism is to be fostered. As a trained-for specialty it makes the role of the general practitioner not perhaps more important but definitely makes the playing of it more effective. The patient as a whole is the specialty of the family doctor for no one is better fitted for its practice. He should be trained for its practice. It should be recognized as his practice. The city practitioner has easy access to most of the things he needs. Not so the country doctor. His fewer weapons are blunted by inconveniences. He chafes under the limitations laid upon him by distance

and lack of facilities. Only the knowledge that he is sorely needed keeps him where he is and as he is. Give him the tools and the work shop and he, almost more than anyone else, will make a coffin for disease. Give him a chance to put into practice what he has learned and what he can do. Train him to use to the full his unique advantages. See to it that his prestige is restored and that the people know him for what he is—well trained, with more than enough knowledge to meet all but the most extraordinary needs of his patients.

Were there things done the lure of the rural practice might become greater than that of city specialism, the mingling of neighbours preferable to the casual meeting of strangers, and practice in general become rounded and balanced.

In the body of medicine practitioners and specialists are members one of another. If the body is to be efficient its members must be symmetrical, competent and co-operative, each trained to do, and doing, that for which it is especially fitted. The healthy body does not show hypertrophy of one part and atrophy of another. Both of these states are pathological in a body of men as well as in the body of a man.

Our medical body is developing asymmetries. An American college states that of its graduates 85% are in special practice. It is almost exceptional to hear even our own interns speak of going into general practice, quite exceptional to hear one say that he means to practice in the country. General practice somehow has become distasteful and somehow it must be made attractive for it is too important a division of our calling to be neglected.

But how is this to be done? Perhaps by recognising in general practice an important speciality for which special training is necessary; by instilling in the public mind the dignity and importance of those whose scope is wide enough to include all but the higher technical procedures; by making it possible for men in country practices to enjoy all the necessary facilities of the city; by stressing the importance, opportunities and advantages of general practice to those in whose hands will lie the health of the rising generations. There may be other and better ways of getting rid of what is wrong with general practice. The fact remains that there is something wrong and there remains also the fact that it must be set right.

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To Err Is Human

Every month when the printed Review is laid before me I wonder what errors I shall find in it. Somehow typographical errors, like the gremlins that plagued the airmen, have means of appearing at the most inopportune places after baffling every search made for them.

In the February issue they were there in full force. Errors, omissions and misarrangements seemed to be the order of the day. Some were so glaring that readers may have wondered if there had been any proof reading. Others were less conspicuous but none the less annoying. "To err is human" wrote Alexander Pope and he added "to forgive, divine." Here is an opportunity for you to show that Sallust was right when he said that in all of us there is a little that is divine.

So far, however, our errors have not been too gross. For example, we have never committed such faux pas as "Mr. and Mrs. Smith take pleasure in announcing the betrayal of their daughter," or "Miss Jones attracted a large gallery (at a golf tournament) because of the amazing regularity with which she dropped her shorts on the green." Let's hope we do better in this issue.

♦

I am very sorry to tell our readers that Mr. Whitley lost his wife suddenly on Feb. 12th. Mrs. Whitley had been ailing for some time but her death was not expected and the blow was correspondingly heavy. It is difficult to express sympathy in words but the hearts of all of us who know Mr. Whitley well go out to him.

♦

Remember Doctor Moorhead

Not the least important pages of the Review are those which come from the pen of Dr. Moorhead. Each month he gives you information about the Manitoba Medical Service in the hope that it will help you. It is possible that not all of you give these contributions the attention they deserve. The matter published in this issue is of more than ordinary importance and you are urged to read it.

Following service for three and a half years with the R.C.A.M.C. in Canada and Overseas, Dr. F. L. Jamieson has resumed general practice. His office is now located on the 5th Floor, New Wing, Medical Arts Building.

Doctor Wanted

A young doctor to locate at the Village of McCreary. New hospital to be built this year. No opposition for many miles. Apply to J. F. Ennis, Secretary-Treasurer, Rural Municipality of McCreary.

Personal Notes and Social News

Dr. and Mrs. Ian S. Maclean are happy to announce the birth of their third son, Kenneth Alastair, on February 1st, 1947, at the Winnipeg General Hospital.

♦

Dr. and Mrs. Claude McRae have left Winnipeg for Victoria, B.C., where they will reside in the future.

♦

Dr. and Mrs. George H. Evoy take pleasure in announcing the birth of a son, Hubert George Patrick, on February 25th, 1947, at the Misericordia Hospital, Winnipeg.

♦

Dr. H. G. Swan has been appointed Assistant Medical Director of the Crown Life Insurance Company with headquarters in Winnipeg.

♦

Dr. A. M. Goodwin has returned from Ann Arbor, Mich., where he took a postgraduate course in obstetrics and gynaecology at the University of Michigan.

Drs. C. E. Corrigan, C. W. Burns and P. H. T. Thorlakson have returned from Quebec City where they attended a surgical convention.

♦

Dr. William J. Thompson, son of Mr. and Mrs. Percy J. Thompson, of Winnipeg, was married on February 8th, in Vancouver, to Margaret MacLaren, daughter of Mrs. G. C. Goulding and the late Mr. Goulding, of Vancouver. Dr. Thompson is a U. of M. graduate and at present is on the staff of the Shaughnessy Military Hospital, Vancouver.

♦

Dr. G. E. Wakefield, formerly of Winnipeg, has left for Tranquille, B.C., where he has accepted the position of staff physician at the Tranquille Sanatorium.

♦

Dr. Morris John Furman, son of Mr. and Mrs. J. I. Furman, of Winnipeg, is engaged to marry Reva Leah, youngest daughter of Mr. and Mrs. Joseph Ein, of Westmount, Que. The marriage to take place in the spring.

The Blind

WHAT DO YOU KNOW ABOUT BLINDNESS? by Herbert Yahraes, a ten-cent pamphlet published by the Public Affairs Committee, at 22 East 38th Street, New York 16, New York.

Blind persons have the same desires and the same interests as other persons. They want to study, to work, and to have fun. They can do all of these profitably. But in their association with other people, they like to have their abilities emphasized, not their disabilities.

The opportunities of such persons are limited, not so much by their handicap as by the attitude of seeing people.

Mr. Yahraes gives ten simple do's and don'ts on how to behave when with blind persons. They are:

1. Never talk to a blind man as though he were deaf. Treat him as a normal individual.
2. Never express sympathy for a blind man in his hearing.
3. Don't revise your conversation so as to use "hear" instead of "see." Use the word "blind" without hesitation.
4. When a blind person is entering a car or train, going upstairs, or about to sit down, he needs only to have his hand placed on some leading object. He can do the rest.
5. Offer your arm when walking with a blind person. Don't push him. Go straight if possible. Sound and touch are the blind man's "sight."
6. Speak, if only a word, on entering a room where there is a blind person. If you are a stranger, say who you are. Tell him by a word when leaving.
7. Address a blind person directly, not through another person.
8. Don't exclaim "wonderful" or "marvelous" because a blind man can do the usual things.
9. Don't talk of an "extra sense" or "providential compensation."
10. Always be natural with the blind—never patronizing. Never fail in real kindness.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1946 Dec. 30,'46 to Jan. 25,'47	1946 Dec. 1 to Dec. 22,'46	1945 Dec. 30,'45 to Jan. 26,'46	1945 Dec. 2 to Dec. 29,'45
Anterior Poliomyelitis	0	0	0	0
Chickenpox	130	133	168	256
Diphtheria	12	13	19	17
Diphtheria Carriers	3	3	1	3
Dysentery—Amoebic	0	0	1	0
Dysentery—Bacillary	0	0	1	0
Erysipelas	5	0	7	6
Encephalitis	0	0	0	0
Influenza	4	3	23	22
Measles	621	261	39	13
Measles—German	0	0	1	0
Meningococcal Meningitis	1	3	2	0
Mumps	152	122	122	83
Ophthalmia Neonatorum	0	0	0	0
Pneumonia—Lobar	13	11	18	14
Puerperal Fever	0	0	0	1
Scarlet Fever	25	31	60	75
Septic Sore Throat	1	2	4	6
Smallpox	0	0	0	0
Tetanus	0	0	0	0
Trachoma	0	0	0	0
Tuberculosis	17	90	37	78
Typhoid Fever	0	0	0	0
Typhoid Paratyphoid	0	0	0	0
Typhoid Carriers	0	0	0	0
Undulant Fever	0	1	3	0
Whooping Cough	52	28	32	59
Gonorrhoea	181	133	188	244
Syphilis	31	35	58	67
Diarrhoea and Enteritis, under 1 yr.	5	3	10	3

Four-Week Period Report, Dec. 30, 1946 to Jan. 25, 1947

DISEASES (White Cases Only) *Approximate population.	*736,000 Manitoba	*3,825,000 Ontario	*906,000 Saskatchewan	*2,972,000 Minnesota
Anterior Poliomyelitis		2		4
Chickenpox	130	2042	120	
Diarrhoea & Enteritis (under 1 yr.)	5			
Diphtheria	12	31	2	33
Diphtheria Carrier				
Erysipelas	5	6	1	
Influenza	4	22	3	
Inf. Jaundice		63		
Measles	621	376	653	71
German Measles		99	6	
Meningococcal Meningitis	1	7	4	3
Mumps	152	2077	571	
Pneumonia Lobar	13			
Scarlet Fever	25	401	6	173
Septic Sore Throat	1			
Tuberculosis	17	166	10	4
Typhoid Fever		3	1	
Undulant Fever		3		4
Whooping Cough	52	352	15	24
Dysentery—Amoebic		21		4
Gonorrhoea	181	413		
Syphilis	31	279		

DEATHS FROM COMMUNICABLE DISEASES

For 3-Week Period, Nov. 23 to Dec. 14, 1946

Urban—Cancer, 40; Pneumonia (Lobar), 3; Pneumonia (other forms), 8; Syphilis, 2; Tuberculosis, 5; Hodgkin's Disease, 1; Disease of Pharynx and Tonsils, 1; Diarrhoea and Enteritis (under 2 years), 5. Other deaths under 1 year, 19. Other deaths over 1 year, 151. Still births, 12. Total, 182.

Rural—Cancer, 29; Influenza, 2; Pneumonia (Lobar), 3; Pneumonia (other forms), 9; Tuberculosis, 7; Disease of Pharynx and Tonsils, 1; Diarrhoea and Enteritis (under 2 years), 3. Other deaths under 1 year, 21. Other deaths over 1 year, 128. Stillbirths, 17. Total, 166.

Indians—Pneumonia (Lobar), 1; Pneumonia (other forms), 2; Tuberculosis, 6. Other deaths under 1 year, 2. Other deaths over 1 year, 3. Stillbirths, 1. Total, 6.

♦

DEATHS FROM COMMUNICABLE DISEASES

For 3-Week Period, Dec. 21, 1946 to Jan. 4, 1947

Urban—Cancer, 34; Diphtheria, 1; Influenza, 1; Pneumonia (Lobar), 3; Pneumonia (other forms), 6; Syphilis, 2; Tuberculosis, 2; Septic Sore Throat, 1; Diarrhoea and Enteritis (under 2 years), 2. Other deaths under 1 year, 25. Other deaths over 1 year, 136. Stillbirths, 8. Total, 169.

Rural—Cancer, 26; Pneumonia (Lobar), 3; Pneumonia (other forms), 14; Syphilis, 1; Tuberculosis, 19; Whooping Cough, 1; Hodgkin's Disease, 1; Disease of Pharynx and Tonsils, 1; Septicemia, 1; Diarrhoea and Enteritis (under 2 years), 1. Other deaths under 1 year, 17. Other deaths over 1 year, 135. Stillbirths, 6. Total, 158.

Indians—Pneumonia (Lobar), 1; Tuberculosis, 6; Puerperal Septicemia, 1; Diarrhoea and Enteritis (under 2 years), 1. Other deaths under 1 year, 6. Other deaths over 1 year, 8. Stillbirths, 2. Total, 16.

♦

Measles is epidemic in Manitoba and Saskatchewan. Young babies and delicate children should be prevented by all means possible, from being exposed to this disease as it is in these persons the deaths occur.

Mumps is also quite prevalent in Manitoba but more so in Ontario and Saskatchewan. It is the males over the age of puberty who require special attention if they contract this disease.

Scarlet Fever cases reported are not significantly numerous. We expect to have a new preventive against this disease available shortly after April 1, 1947. It is a tannic acid precipitated scarlet fever streptococcus toxin and will be given in three doses only. The doses will each be 1/10 c.c. given **intradermally.** When this is available an announcement will be made.

Association Page

The sincere sympathy of all members of the Association is extended to the Review Business Manager, Mr. J. G. Whitley and his family in their recent bereavement.

♦

Annual Meeting of the Manitoba Medical Association

When the Canadian Medical Association meets in any province where there is a Division the meeting of that Division for that year is for business purposes only.

By resolution of the Executive Committee, the Annual Business Meeting of the Manitoba Medical Association will be held at two o'clock on the afternoon of Tuesday, June 24th.

Balloting for election of officers and in respect of any resolutions will be continued until Thursday, June 26th.

On Tuesday evening the Manitoba Medical Association will be hosts to members of the Canadian Medical Association General Council and their wives at a complimentary dinner. The Entertainment Committee consists of: Doctor Stuart Schultz (Chairman), Doctor D. C. Aikenhead, Doctor Elinor F. E. Black, Doctor H. M. Edmison, Doctor Clare Rumball.

All members of the Association are invited to make the evening an outstanding success. Further information concerning the plans will be announced when available.

♦

Plans are well under way for the 78th Annual Meeting of the Canadian Medical Association, to be held in Winnipeg, with headquarters at the Royal Alexandra Hotel, June 23-27, 1947. Inasmuch as the limited hotel accommodation will be taxed to capacity by our professional guests from other provinces, Manitoba doctors are advised to secure alternative accommodation NOW! It may be that there are relatives or friends who will be pleased to "take you in" or to "put you up" for a few nights. It may indeed be your opportunity to "retaliate" for hospitality extended to them on former occasions!

Should other efforts fail, it is altogether likely that our genial Chairman of the Committee on Housing, Dr. D. C. Aikenhead, will be able to supply suitable accommodation at the Men's Residence, University of Manitoba, Fort Garry, where 400 beds have been promised. (D. C. assures us that after a hot day in the city, the University grounds will provide a cool retreat).

The week-end of February 15-17 was indeed a busy one in local medical circles, when Dr. Wallace Wilson (President), Drs. T. C. Routley and A. D. Kelly, General Secretary and Assistant Secretary, respectively, of the Canadian Medical Association, were our guests.

On Saturday afternoon, the Committee in Charge of Arrangements for the C.M.A. Annual Meeting met in the Montcalm Room, Royal Alexandra Hotel. The same evening Dr. T. C. Routley addressed a special meeting of the Winnipeg Medical Society, when his subject was "Recent Developments in International Medicine." The regular meeting of the Executive, Manitoba Medical Association, was held on the afternoon of February 16th and the Local Program Committee met the same evening to consider the progress reports for the Scientific Program of C.M.A. Annual Meeting. Monday was occupied with a variety of Committees, not the least of which was the Ladies Committee.

So ended a strenuous, but profitable week-end!

♦

The Deputy Registrar of Motor Vehicles advises that additional car license plates in the 4,000 series for the use of Manitoba Doctors have been ordered. Delivery of the plates is not expected for at least two months. Any doctor who has been unable to secure one of these markers will then be able to exchange his present plate on the payment of the one-dollar fee.

♦

The American College of Surgeons is holding eight 2-day Sectional Meetings throughout the United States and Canada during the months of March and April. Winnipeg has been chosen for one of the Meetings to be held at the Fort Garry Hotel on Monday and Tuesday, April 14th and 15th.

♦

Still available in the Post Graduate Program of the University of Oregon Medical School are:

March 2-7, 1947—Intensive Course in General Surgery.

April 7-12, 1947—Ophthalmology and Otolaryngology.

April 28-May 2, 1947—Intensive Course in Gynecology.

May 5-9, 1947—Intensive Course in Radiology.

May 19-23, 1947—Intensive Course in Orthopedic Surgery.

June 2-6, 1947—Intensive Course in Electrocardiography.

Information may be obtained by applying to the University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1, Ore.

Canadian Medical Association

To the Secretaries of Divisions

Dear Doctor:

Re $20,000 Grant from D.V.A.

It will be recalled that, in June, 1945, under P.C. 3999, the Department of Veterans Affairs made a grant of $20,000.00 to the C.M.A. to be used in a "counselling service to returning Medical Officers." Inasmuch as this service was carried on by the respective Divisions on a voluntary basis, it was not found necessary to utilize any of the grant and, therefore, on December 19th, the Association returned the full amount to the Government.

We have received an acknowledgement from the Minister of the Department of Veterans Affairs, the Honourable Ian Mackenzie, a copy of which is enclosed for your information.

Yours sincerely,

T. C. Routley,
General Secretary.

Department of Veterans Affairs

Dr. T. C. Routley,
General Secretary,
Canadian Medical Association,
Toronto 5, Ontario.

My dear Dr. Routley:

Mr. Woods, my Deputy, has referred to me your letter of December 19th with which you returned a cheque in the sum of $20,000.00, constituting a refund of an amount voted to your Association under P.C. 3999 in June, 1945.

You state that the services for which this sum was intended, namely, to provide honoraria to members of your Association who rendered rehabilitation advice to discharged physicians from the Forces, have been donated gratuitously. May I say how deeply I appreciate this action on your part. It is in the highest tradition of your profession that the members of your Association would prefer to give their services to those who served us so well during the war years.

On the next appropriate occasion I would appreciate it if you would extend my deep appreciation to your members for this co-operation and their splendid contribution.

Wishing you the Season's Greetings, I remain.

Sincerely yours,

Ian Mackenzie.

♦

Meeting of American Congress on Obstetrics and Gynecology

The program of the Third American Congress on Obstetrics and Gynecology to be held September 8-12, 1947, in St. Louis, will feature general sessions for all groups making up the Congress as well as smaller individual group meetings and round table discussions. The morning sessions will be panel-type presentations of the following subjects: Tuesday, Sept. 9: Anesthesia and Analgesia; Wednesday, Sept. 10: Cancer; and Thursday, Sept. 11; Caesarean Section.

The afternoon meetings of the medical section of the Congress will consider on Tuesday: Psychosomatic Aspects of Pregnancy; on Wednesday: Pregnancy Complicating Cardiac Disease, Diabetes and Tuberculosis; and on Thursday: Recent Advances in Endocrinology.

Round Table discussions from four o'clock to five daily will consider such topics as etiology of abortion, asphyxia, fibroids, prolonged labor, infertility, early ambulation, adolescence, treatment of abortion, genital relaxation, ovulation, the menopause, the cystic ovary, uterine bleeding, nutrition in pregnancy, geriatric gynecology, endymetriosis and erythroblastosis.

Concurrent sessions and round tables for nurses, hospital administrators and public health workers are being arranged.

The popular forceps and breech demonstrations that attracted so much attention at the Second Congress in 1942 will be increased in number so that eighteen demonstrations per day will be held, six each at nine, one and five o'clock daily.

Manitoba Medical Service

In the two years of existence of the Manitoba Medical Service, the Board of Trustees has made rules and regulations. These have been the result of unforeseen conditions which have been brought to its notice, and others will arise from time to time.

Some of them have been printed in the Manitoba Medical Review, and many of the rules apply only to certain types of practice. An effort is being made to have all doctors familiar with them, and for that purpose they have been collected, edited and submitted to you in a form which is accessible.

You will notice duplication and overlapping; this is because the problems have been presented in different forms and a motion has been passed as the result.

In the use of the fee schedule, general practitioners will use the G.P. sections, (Pages 1 to 13) and specialists their appropriate sections. Where a specialist performs a service in his field which is not listed in the specialist schedule, but is listed in the G.P. schedule, then he shall charge an additional 50% of the G.P. fee; and conversely when a G.P. performs a service which is not listed in his schedule, but is listed in a specialist section, then he shall charge 2/3 of the specialist fee.

1. Specialists may elect another general field in which to practice; the fee for such secondary specialty shall be that of a general practitioner.

2. Members of clinics will be regarded as individuals with the privileges of medical members.

3. Infections or contagious diseases will be covered except where care is available to subscriber or his dependants without cost to him.

4. Deep X-ray therapy will be paid for when given under the direction of a medical member and the bill rendered by him. The Manitoba Medical Service cannot pay institutions. Radium or its products will not be paid for, but the practitioner using it will be paid for his services.

5. A patient treated in a hospital for mental diseases is not covered.

6. X-ray of teeth will only be covered when referred by a medical member to a medical member.

7. Penalty for late filing is 5%.

8. In the case of patients sent to a hospital for laboratory work, the doctor will pay the hospital and submit his bill to the Manitoba Medical Service for a refund.

9. Regulations do not provide the services of a surgical assistant.

10. There is no provision for payment by the Manitoba Medical Service to clinics outside Manitoba even when the patient is referred there by a medical member.

11. Hospital history sheets may be used and are to be taken as correct unless proof to the contrary is produced.

12. For laboratory work, BMR's, etc., there is no special rate.

13. Accounts are to be passed on basis of information supplied.

14. Repeated pelvic examinations—as a pelvic examination was included originally to establish a diagnosis, repeats are not allowed.

15. Where a condition is ruled as pre-existing, the Manitoba Medical Service will pay only for the first physical examination and not for lab and X-ray examinations. All these other examinations are a liability of the patient to the doctor.

16. Circulation time not covered.

17. On emergency cases outside Greater Winnipeg, payment to non-member doctors to be made on the same basis as to members.

18. Multiple tonsillectomies to be paid at present rate.

19. Post-operative examinations are included in the operative fee. Post-operative examination to be allowed at discretion of Medical Director and only after one month from date of discharge.

20. Fee for superficial wounds includes subsequent dressing.

21. Intravenous injections — where substances can be given intramuscularly, payment to be made at that rate.

22. Health examinations before conception are not provided by the Manitoba Medical Service.

23. Powers and use of Referee Committee—ruled the Medical Director has first to assess claims to the best of his knowledge. That on unusual services he first write to the doctor concerned, that in his opinion such services are out of line with current practice, and that on and after this date the Manitoba Medical Service will not provide for the same. Should this ruling not be satisfactory, the said doctor can appeal to the Referee Committee, but that the previous decision stands until said Referee Committee rules upon the same.

Plan "A"

24. Lumbar punctures are not covered unless as a part of the operative treatment of a head injury.

25. Surgical services shall include the fee not exceeding $10.00 of an anaesthetist in emergency cases occuring between 2.30 p.m. and 7.00 a.m. if no full time salaried anaesthetist is available.

26. Covers accident cases where the patient is treated by his doctor or deputy in a hospital though not a bed patient.

27. Covers removal of a cyst or minor surgery in hospital, though not a bed patient.

28. Investigation in hospital before an operation is performed is covered.

29. Epidural injections and aspirations of joints are considered surgical procedures and are covered only in hospital.

30. Fracture cases, where patient is not admitted to a hospital as a bed patient, is accepted at 75% of the regular fee.

Pregnancy

31. Examinations for sterility are covered.

32. Pre and post-natal care—since there is an inclusive fee for obstetrical care, it is immaterial how they are paid, since the total fee must conform to the schedule.

33. One BMR only, if necessary.

34. Fee for pre-natal exam to be $2.00 and $2.50 respectively.

36. In cases of pregnancy where the Manitoba Medical Service is not liable, it is also not liable for abortions, toxaemias or other complications of pregnancy.

36. Caesarian section—not liable if not liable for pregnancy.

Fees

37. Supervision of children's feedings — that there be four examinations in the office by the doctor apart from immunization and sickness, during the first year after birth, to be covered by the Plan. The fee to the general practitioner not to exceed $14.00, to the specialist $14.00 plus 25%.

38. Fee for urinalysis other than first examination not to be paid if a fee is being charged for office consultation or treatment.

39. See Page 23 new schedule (amendments).

40. Throat swab, $3.00.

41. Multiple operations — that fee for major operation should cover all operations done at the same time in the same area.

42. If a case is referred and referee takes over the case, he does not receive consultant's fee.

43. General practitioner is not paid after a specialist takes charge of a case.

44. The medical member may charge for daily hospital visits to a patient if deemed necessary. Details may be requested by the Medical Director.

45. Where orthopaedist assumes treatment of a difficult fracture case, the family physician who previously treated it, should receive a fee not exceeding 50% of a standard fee.

46. No fee for certificates issued by doctors.

47. Payments for the initial visit and tests to establish a diagnosis of venereal disease will be made; treatment will not be provided for.

48. Greenstick fractures will be paid at full rates.

At a recent meeting, certain changes in the Manitoba Medical Association fee schedule were made. The meeting was held by authority of the Executive Committee of the Manitoba Medical Association, and representatives from it attended. The Fees Committee of the Manitoba Medical Service also took part in the discussion. At the time of going to press, no instructions had been given as to the date when the new scale should take effect.

Manitoba Medical Association Fee Scale (Revised)

Page 1—Infectious diseases; one call at $5.00. Special procedures, section 3a, b, c and d, ceiling $5.00; WR is not an extra.

Page 2—Section 7. Intended to cover major or multiple ailments as distinct from fees on Page 1.

Section II. Intravenous medication $3.00.
Confinements, 6 pre-natal $12.00, 1 post-natal $3.00.

Page 3—Biopsy of cervix. If done in office, pay the fee, and refer to Fee Committee of Manitoba Medical Association after consultation with doctor.

Cauterization of cervix. Chemical cauterization paid as an office examination.

Page 4—Removal of cervical polyp. $25.00 only if done in hospital under a general anaesthetic.
Sec. (opening). Dressings are extra.

Page 5—Hallux valgus. Bilateral $75.00.
Suturing of wounds: Finger $5.00, Hand $10.00.

Page 6—Intestinal obstruction (malignancy) 3 stages $275.00.

Page 10—Circumcision. Infant, definition, new born under 30 days.

Page 14—Pneumonectomy $250.00. Lobectomy $200.00.
Sympathectomy, Lumbar or dorsal both sides $225.00. Abdominal $150.00.

Page 16—Internal medicine. Diagnostic investigation $25.00 when done in hospital.
Consultation. First visit $10.00. Repeats $5.00.

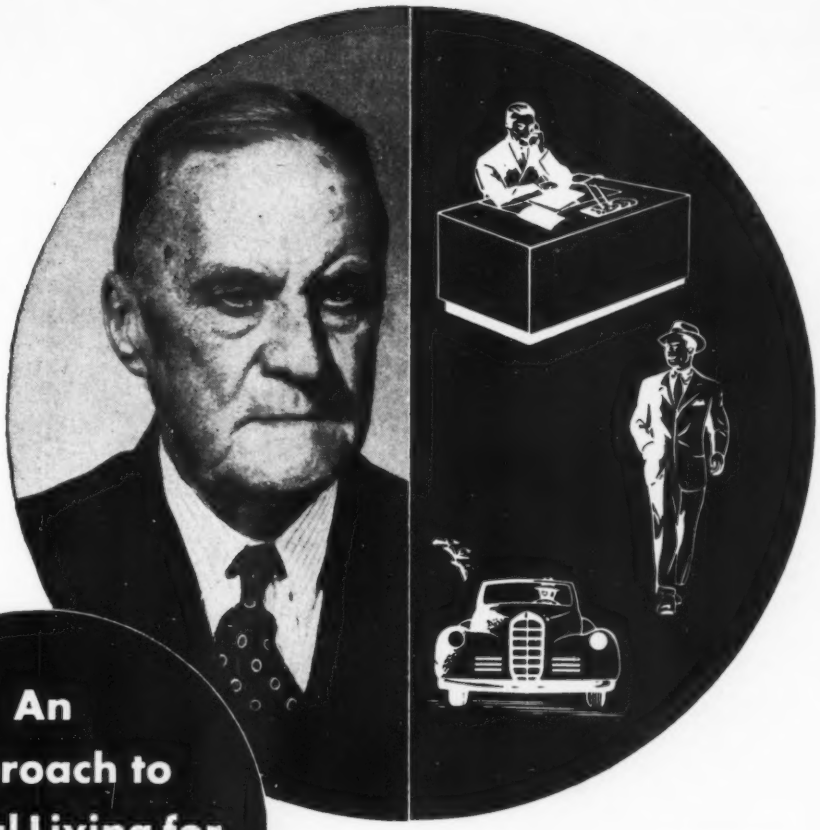
Page 17—Allergy testing. Ceiling $45.00.
Management of diabetic case in coma (hospital) or of coronary thrombosis. If there is care and recovery, full fee. If patient dies early, ordinary fee scale.
Dermatology, house visits $5.00. Hospital visits $3.00.

Page 23—Lab procedures. Blood. Routine RBC, WBC, Hgb, smear, sed rate, WR, urine $5.00. If there is a definite indication, fees will be allowed for extras.

Additional Regulations by Same Committee

Fitting and provision of contraceptive pessaries not covered.

(Continued on Page 192)



An Approach to Normal Living for the Chronic Cardiac

Physicians know the dramatic results in respiratory failure through the use of Coramine intravenously. Of equal value in ambulatory patients with chronic cardiovascular disease is

CORAMINE LIQUID

This form of Coramine is indicated where drastic action is not required, but where maintenance and progressive improvement are sought. Taken orally, Coramine Liquid enables the patient to move about freely and to carry on moderate normal activities with an easy mind—in itself an important factor in management of cardiac conditions.

ISSUED:

Liquid, for oral use—bottles of 15, 45 and 100 c.c.

For intravenous or intramuscular use, ampoules of 1.5 c.c.—cartons of 5, 20 and 100
5 c.c.—cartons of 3 and 12

CIBA COMPANY LIMITED - MONTREAL

Hobbies*

Sydney J. S. Peirce, M.D.

Happy is the man whose vocation is his hobby. Happy the grocer who is never so charmed as when he is handing cornflakes and coffee over the counter to contented customers, or the surgeon when he is fingering the "chidlings" of an unconscious patient in search of a retrocecal appendix. To such a man life is "one sweet song."

But comes the day when "the strong men shall bow themselves and the grinders cease because they are few and those that look out of the window be darkened" (Ec. 12-3)—(If you don't believe it, look it up for yourselves)—Yes, this day will come to every one; if he has not previously been mercifully carried off by an automobile accident or an aeroplane crash. Then his chief concern ceases to be his daily vocation and unless he has some avocation, some hobby, to engage his attention, he is in danger of dying of pure "ennui."

The topic of "Hobbies" is so large that I must confine myself to my own personal experiences.

Let me begin, then, at the beginning. I must confess that my recollections of the beginning of my human experiences are hazy. You possibly have heard a ladies' definition of a "baby"—"A baby is an alimentary canal with a 'squall' at one extremity and no responsibility whatever at the other!" And speaking of alimentation, perhaps you may not have had the opportunity of listening to the address, before the Canadian Club, of Sir Andrew Jones, Chief of the British Food Commission. He remarked that, although the British were grateful for the supplies of food sent from America, they were not very fond of some of the tinned meats such as "Spam." Two ladies were talking in the London underground (you who have been there will remember the displays of posters advertising Cadbury's Cocoa and Pear's Soap) and at this time there was a campaign on against venereal disease and on every wall were posters with V.D. in large letters. One lady said to the other, "What is this V.D. that they advertise so much?"

The other said, "I don't know, but I think it is something that comes from America."

The other said, "Well, I hope it is something better than the "Spam" they are sending!"

But to return to our subject. On arriving at the "age of responsibility" say two to three years, my self-consciousness began to emerge and I think that my hobby at that time was concerned with the plastic arts. We were living at that time in the environs of the English sea-port town of Southampton and in the neighborhood of our home were tall sand banks which were being gradually denuded for ballast for ships sailing for the South Seas, leaving at their base a layer of soft, blue clay. (You remember, Mr. President, how delightfully that squeezes up between your toes when you walk over it). And my juvenile interest was mainly engaged in making various objects (pies, etc.) out of this lusciously soft material which, in our Hampshire dialect, was known as "pug."

How versatile is the English language! You remember Punch's famous cartoon. It was entitled "Bucolic Hospitality."

Two yokels on one side of a street are discussing a passer-by on the other. One says, "Who is he?"

The other says, "A stranger."

The first says, "Heave 'arf a brick at 'im!"

In Hampshire we would say, with equal hospitality, "Bung a dollop o' pug at 'im!"

And up in that little town in Middlesex they would say, "Chuck a bit o' mud at 'im!"

All of this might be translated into the Oxford dialect, with which perhaps many of you are more familiar, as "Project a portion of clay in his direction."

And so it would go through the midlands to Westmoreland and Cumberland, richt oop ta th' booriders o' Sco'land and gin ye git noorth o' the Tweed a dinna kin whaut ye may fin. Yes, it is a wonerful language, is the Ainglish language an' so it is! Indaid!"

But to return to my topic. At what we might call the age of maturity, say of twelve to fourteen years, I took up the hobby of photography. Ah, them were the happy days. When a photographer was known by his fingers, stained black with silver nitrate or brown with pyro. Now-a-days, with 1.2 lenses, electric photo-meters, geared focus and distance, photography is no longer a hobby.

It is like bridge or cigarettes. It's a disease! But I did rescue one little thing from my photographic interests. Photography is an art by which the evanescent and perishable is made permanent. And what is more evanescent and perishable than the snow-crystal that lights on your sleeve, delights you for a moment with its star-like beauty and perishes in a droplet of dew. Do you realize that what you have seen is unique! That no one has seen it before and no one will ever see its duplicate, as no two snow-crystals are identical! With a home-made microscope and a Leica camera, I have been able to rescue the form of a few of these jewels of nature. But this is a hobby for only a few days in winter . . . as few are the days in which the meteorological conditions are

*Post-prandial address delivered before a dinner meeting of the Brandon District Medical Association, November 6, 1946.

Hobbies—(Continued)

right for this line of sport, and the weather is something "you can't do anything about."

What is there for the summer? Well—gardening, building a summer house in the wilderness. But both of these has a disturbing factor—mosquitoes. And here I found one of my most fascinating "hobbies." For mosquitoes, I found, unlike the weather, are something you can do something about. The mosquito comes of a family of immeasurable antiquity, that dates back to a period preceding by millennia the time when the blueprints for the human race first came on Nature's draughting table. Its study has fascinating angles. Did you know that families of mosquitoes are classified into genera by the number and distribution of hairs on their chests! I was the happy spectator of the nuptials of a pair of young mosquitoes that I had adopted into my family. That was before the day when pre-marital W.R. was required. The marriage was a success and the wife, in due time (after delicately feeding on my arm about Xmas time) produced some 150 eggs in one batch. (If we could cross the mosquito with the barnyard fowl, we would have something—but I haven't got that far). But the husband lived only about 10 days. Do not grieve at this point. It is the natural process of nature and I think a very desirable one. Why keep the old man cluttering up the rocking chairs long after his necessary functions have been fulfilled. The insect world does better in this respect. With the bees the king perishes with the nuptial embrace and the superabundant bachelors are disposed of by the ladies of the hive. And the black-widow spider reaches the apex of economico—sociological development—she eats her mate. Now here is a case where a woman really enjoys her husband. I think Stalin should be enlightened as to these facts of nature. The Soviets have introduced a form of society copied from the bees and ants. Why not introduce the black-widow angle? With modern refrigeration and all, it would ease the meat situation and perhaps Canadian girls would develop a taste for Russians; then we would see in the papers "Marriage a la Russe, all friends invited!"

But to return to hobbies and the age of senescence—say about 40 years, I took up the study of German. Osler said, "A new language every five years." I think that is pushing a hobby a little too hard and, of course, German is now a dead loss. But I did rescue a little from my German. In my reading I did get a certain measure of pleasure from the somewhat sugary poetry of the mid 19th century, and endeavoured to translate some of it, retaining not only the sense but the metre of the original, a feat by no means easy, combining the features of both jig-saw and cross-word puzzles. I ultimately concluded that it was much easier to choose a theme of one's own and fit it to an appropriate rhythm than to juggle with someone else's ideas and works. Hence poetry as a minor hobby, I can heartily recommend to anyone. It is of all hobbies the cheapest. All you need is the stub of a pencil, which you can borrow, and the back of an old letter, which your creditors will supply you with gratis every month.

My present language hobby is Spanish. You may say, "Why Spanish?" Well, the famous Louis XIV once said to one of his courtiers, "You should learn Spanish." The courtier, visioning a fat ambassadorial job proceeded to study Spanish, and ultimately appeared in the royal presence with the announcement, "Sire, I have learned Spanish."

"Excellent," said Louis, "Now you can read Don Quixote in the original."

To read Cervantes' masterpiece in the original is also my ultimate aim, but so far I have been unable to secure a copy. The nearest I have come to it is "Selecciones" — the Spanish edition of Reader's Digest. There are bright spots in this serious publication. Here is a sample in the sort of bi-lingual patter that I should probably use if I were to encounter a Spaniard, a pleasure which, so far, has been denied me.

"Eran dos ninos, un chiquillo y una chiquilla (there were two children—a little boy and a little girl). They lived in the neighborhood of a "colonia nudista" (a nudist colony) and one day they found "un agujero en la pared" (a knot-hole in the fence) and proceeded to investigate. "La chiquilla atisbo primero" (the little girl peeped in first). "Que son," said the chiquillo, "hombres o mujeres?" (What are they, men or women?). "No se," respuso la chiquilla, "porque no tienen puesta la ropa." (I don't know," replied the little girl, "because they haven't their clothes on). Which shows that "clothes make the man" and the woman, too, apparently.

One of my confreres, in looking over the list of languages included in the Linguaphone lists, found the language Efik and expressed a desire to study it. I warmly recommended him to do so. What Efik is I have not the faintest idea, but there may be some good stories in Efik.

Now, Mr. President, there was a patient who consulted a famous physician with a query as to how he could live to be a hundred. "Well," said the physician, "you must cut out wine, women and song."

"If I do this," said the patient, "will I live to be a hundred?"

"No," said the doctor, "but it will feel like it!"

Oliver Wendell Holmes has said, "To be a young man of 70 is more exciting and pleasant than to

be an old man of 40." So, Mr. President, may I conclude by offering you the "brindis favorito (the favorite toast) of the South Americans, which runs something like this, "Salud y pesetas y tiempo para gozarlas." (Health and pesetas and time to enjoy them). May I paraphrase this, "Health and good hobbies and time to enjoy them." May they help to bridge over the time from the old man of 40 to the young man of 70.

College of Physicians and Surgeons of Manitoba

Annual Meeting Report

(Continued from January issue)

Motion:

Moved and seconded: "THAT the report of the representative of the University Senate be adopted." Carried.

(f) Representatives to the Cancer Institute.

Dr. W. G. Campbell presented the following report:

During the past year there have been no changes in the policy or of the activities of the Institute, but there has been an appreciable intensification in some fields of work.

The number of cases treated with radium last year was almost identical with the previous year. The demand for X-ray therapy increased approximately 20% over the previous year.

The rural biopsy service, which supplies a report on any tissue sent from a practitioner in Rural Manitoba has increased 22% in volume. Last year there were over 450 tissue examinations.

Two years ago a patient follow-up service was instituted with the purpose of following up all patients receiving X-ray therapy in the Institute's own centre. The service has proven so useful that it has been extended so that any physician who has a private cancer patient may utilize the follow-up service if he so desires. The service has also been extended to all cancer patients in the Winnipeg General Hospital.

Public educational work has been intensified, with the result that there has been an increase of 14% in the number of groups working in this field.

Motion:

Moved and Seconded: "THAT the report of the representatives to the Cancer Institute be adopted." Carried.

(g) Report of the Returning Officer and Scrutineers.

The Registrar, Dr. W. G. Campbell, presented the following report:

As Returning Officer of the 1946 elections, I beg to report that the following member was appointed to the Council by acclamation:

Portage la Prairie ..... Dr. A. A. Alford, Oakville

The results of the election in the remaining districts are as follows:

Brandon ..... Dr. W. S. Peters, Brandon
Dauphin & Nelson ..... Dr. C. S. Crawford, The Pas
Lisgar ..... Dr. C. W. Wiebe, Winkler
Macdonald ..... Dr. E. K. Cunningham, Carman
Marquette ..... Dr. T. W. Shaw, Russell
Neepawa ..... Dr. J. S. Poole, Neepawa
Provencher, Springfield and St. Boniface ..... Dr. James Prendergast, St. Boniface
Selkirk ..... Dr. Edward Johnson, Selkirk
Souris ..... Dr. W. F. Stevenson, Belmont
Centre Winnipeg ..... Dr. J. M. Lederman
Dr. T. H. Williams
North Winnipeg ..... Dr. F. A. Rybak
Dr. I. Pearlman
South Winnipeg ..... Dr. W. G. Campbell
Dr. H. Bruce Chown

I herein certify that this is a correct report of the details furnished by the scrutineers.

Respectfully submitted,
Dr. W. G. Campbell,
Returning Officer.

Drs. E. F. E. Black and A. R. Birt, Scrutineers.

Motion:

Moved and Seconded: "THAT the report of the Returning Oficer and Scrutineers be adopted." Carried.

Business Arising From the Returning Officer and Scrutineers' Report.

(a) Election Statistics.

The following statistics were prepared in reference to the 1946 elections:

Electoral Districts	Number Physicians	Number Eligible	Number Nomination Papers Returned	Number Nominated	No. Voting Papers Returned
Brandon	41	39	17	4	29
Dauphin & Nelson	34	32	10	10	15
Lisgar	11	9	5	2	9
Macdonald	13	12	6	3	5
Marquette	20	17	5	3	9
Neepawa	10	8	3	2	5
Portage la Prairie	15	15	5	1	Acc.
Provencher, Springfield & St. Boniface	60	55	16	7	26
Selkirk	30	28	12	4	12
Souris	16	15	6	5	11
Centre Winnipeg	47	45	7	5	21
North Winnipeg	43	37	10	7	27
South Winnipeg	324	314	44	22	174
Totals	664	626	146	75	343

(b) Re:Nominations:

The Registrar, Dr. W. G. Campbell, stated that several candidates were nominated without their consent, and did not know until they received their voting instructions. It was then too late to remove their names from the voting list.

He also stated that Dr. J. Prendergast had again brought up the subject of the Registrar being Returning Officer, and a candidate for election.

Motion:

Moved and Seconded: "THAT Dr. W. G. Campbell and Dr. James Prendergast be a Committee to discuss these and other matters pertaining to the election by-law, and report back to the May meeting of the Council." Carried.

(c) Resignation of Dr. E. K. Cunningham.

Dr. W. G. Campbell read a letter from Dr. Cunningham, elected to the Council for the district of Macdonald, stating that he wanted to resign from the Council. He stated that he did not know that he had been nominated until the voting instructions were received. He also stated that he thought Dr. A. E. McGavin, who has been on the Council for several years, should represent the district of Macdonald.

Motion:

Moved and Seconded: "THAT Dr. E. K. Cunningham's resignation be accepted, and that the Registrar prepare for a by-election in the electoral district of Macdonald." Carried.

(d) Re: Payment of Scrutineers.

Motion:

Moved and Seconded: "THAT the Scrutineers for the 1946 elections be paid the fee of Twelve Dollars and Fifty Cents ($12.50) each for their services.' Carried.

(e) Re: Disposal of Nomination and Voting Papers.

Motion:

Moved and Seconded: "THAT the Nomination and Voting Papers of the 1946 election of the Council of the College of Physicians and Surgeons of Manitoba be destroyed." Carried.

6. Election of Officers and Standing Committees.

Officers:

(a) President.

Moved and Seconded: "THAT Dr. B. D. Best be appointed President." Carried.

(b) Vice-President.

Moved and Seconded: "THAT Dr. W. F. Stevenson be appointed Vice-President." Carried.

(c) Registrar.

Moved and Seconded: "THAT Dr. W. G. Campbell be appointed Registrar." Carried.

(d) Treasurer.

Moved and Seconded: "THAT Dr. T. H. Williams be appointed Treasurer." Carried.

Nomination Committee to Strike Standing Committees.

The following members were appointed to be a Nomination Committee to strike Standing Committees:

Dr. J. S. Poole, Dr. A. A. Alford, and Dr. C. B. Stewart.

Dr. C. W. Wiebe relinquished the chairmanship in favor of the newly elected President, Dr. B. D. Best.

Standing Committees

(a) Registration Committee.
Dr. W. G. Campbell,
Dr. C. B. Stewart,
Dr. H. Bruce Chown.

(b) Education Committee.
Dr. A. A. Alford,
Dr. I. Pearlman,
Dr. W. F. Stevenson.

(c) Finance Committee.
Dr. T. H. Williams,
Dr. C. S. Crawford,
Dr. F. A. Rybak.

(d) Legislative Committee.
Dr. J. S. Poole,
Dr. W. G. Campbell
Dr. J. Prendergast,
Dr. W. S. Peters,
Dr. Edward Johnson.

(e) Discipline Committee.
Dr. A. A. Alford,
Dr. C. B. Stewart,
Dr. C. W. Wiebe,
Dr. J. Prendergast,
Dr. H. Bruce Chown.

(f) Executive Committee.
Dr. W. G. Campbell,
Dr. W. S. Peters,
Dr. J. S. Poole,
Dr. I. Pearlman,
Dr. J. M. Lederman.

(g) Library Committee.
Dr. H. Bruce Chown.

(h) Taxing Committee.
Dr. C. W. Wiebe,
Dr. F. A. Rybak,
Dr. Edward Johnson.

Motion:

Moved and Seconded: "THAT the appointments to the Standing Committees be accepted." Carried.

Election of Special Committees

(a) Representatives to the Manitoba Medical Association Executive.

Moved and Seconded: "THAT our representatives to the Manitoba Medical Association Executive be Dr. W. G. Campbell and Dr. W. S. Peters." Carried.

(b) Representatives to the Committee of Fifteen.

Moved and Seconded: "THAT our representatives to the Committee of Fifteen be Dr. C. B.

Stewart, Dr. I. Pearlman and Dr. Edward Johnson." Carried.

(c) Representative to the Committee on Admissions.

Moved and Seconded: "THAT our representative to the Committee on Admissions be Dr. H. Bruce Chown." Carried.

(d) Representative to the University Senate.

Moved and Seconded: "THAT our representative to the University Senate be Dr. J. M. Lederman." Carried.

(e) Representative to the Medical Council of Canada.

Moved and Seconded: "THAT our representative to the Medical Council of Canada, in place of Dr. Wm. Turnbull, be Dr. W. G. Campbell." Carried.

Appointment of Auditors and Scrutineers

Moved and Seconded: "THAT Price, Waterhouse and Company be auditors for the College of Physicians and Surgeons of Manitoba for the year 1946-47." Carried.

Moved and Seconded: "THAT Dr. Elinor Black, and Dr. A. R. Birt be appointed scrutineers for the years 1946-47-48-49." Carried.

7. Communications, Petitions, etc., to the Council.

(a) Communication From Dr. F. G. McGuinness, President Elect of the Canadian Medical Association.

Dr. W. G. Campbell presented a letter from Dr. McGuinness, requesting a donation of One Thousand Dollars ($1,000.00) from the College of Physicians and Surgeons of Manitoba, to the Canadian Medical Association, as the annual meeting of the C.M.A. is being held in Winnipeg in June, 1947.

Dr. F. G. McGuinness appeared before the Council, and explained that the Canadian Medical Association is meeting in Winnipeg during the week of June 23-27, 1947, and on that occasion the profession of Manitoba will be hosts to the profession of the Dominion of Canada. He stated that when the last annual meeting was held in Winnipeg in 1941, the C.P. and S. donated One Thousand Dollars ($1,000.00), which was returned intact. He also stated that the Manitoba Medical Association had donated One Thousand Dollars ($1,000.00) and the Winnipeg Medical Association had donated Five Hundred Dollars ($500.00) to assist with the expenses of the meeting in June, 1947.

Motion:

Moved and Seconded: "THAT the College of Physicians and Surgeons of Manitoba donate the sum of One Thousand Dollars ($1,000.00) as requested by Dr. F. G. McGuinness, President Elect of the Canadian Medical Association, and that if the money so granted by the College is not completely used, that repayment would be expected on a pro rata basis with other contributions." Carried.

(b) Communication From the Manitoba Medical Association Re Grant for Extra Mural Postgraduate Work.

A communication was received from the Manitoba Medical Association requesting a grant towards extra mural postgraduate work in Manitoba.

Motion:

Moved and Seconded: "THAT the College of Physicians and Surgeons of Manitoba grant a sum up to Three Hundred Dollars ($300.00) to the Manitoba Medical Association for extra mural postgraduate work." Carried.

(c) Communication From the Manitoba Medical Library.

A communication was received from Dr. Daniel Nicholson, Chairman of the Medical Library Committee of the Faculty of Medicine, requesting the usual grant from the College of Physicians and Surgeons of Manitoba, for the purchase of books and periodicals for the library.

Motion:

Moved and Seconded: "THAT the College of Physicians and Surgeons of Manitoba grant to the Medical Library Committee the sum of Seven Hundred and Fifty Dollars ($750.00) for the year ending September 30th, 1947." Carried.

Manitoba Medical Service

(Continued from Page 184)

Liability for rejuvenation treatment (estosterone, etc) not covered.

Changing pessary	$2.00
Sternal puncture	$10.00
Gastroscopy	$35.00

Multiple pelvic operations. Payment for major service only.

It is hoped to supply these in a pamphlet, to be attached to your fee scale, already provided by the Manitoba Medical Association. In the latter there are blank pages for the entry of new regulations or fees. Please use them. Please note, a few regulations held over for clarification will appear in a future issue.

E. S. Moorhead, M.B.